

Preliminary 2002 Service Plan: Proposed Bus Service and Service Policy Modifications

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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

Jane Swift, Governor • Kevin J. Sullivan, Secretary and MBTA Chairman • Robert H. Prince Jr., General Manager

Preliminary 2002 Service Plan

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OVERVIEW

The MBTA Board of Directors adopted its Service Delivery Policy in September 1997. The first service plan under this policy was implemented in phases in 1998. This service plan, the second under this policy, has been underway since public outreach began in May 1999. Implementation of approved service changes is expected in Spring 2002.

The MBTA has held (or attended) 25 public meetings since May 1999 where service suggestions from the public have been received. As a result of these suggestions and others from MBTA staff and consultants, the MBTA has implemented about 300 mostly minor and moderate service changes since the 1998 Service Plan was implemented. The MBTA will continue to implement service changes on a quarterly basis as needed.

This plan presents a number of proposed major service changes as well as proposed modifications to the Service Delivery Policy. The plan also identifies some of the previously approved service modifications that the public can expect to see in the next 2-3 years. Finally, the plan highlights some of the MBTA's activities with regard to service-related environmental justice issues.

The appendices to the plan present an overview of the MBTA's public outreach efforts related to the plan; a review of the 1998 Service Plan and a list of the service changes that have been implemented since the 1998 Service Plan.

The MBTA's resources are limited. This plan does not propose any increase in

resource levels. The goals of this plan are to review the allocation of services within each mode (i.e., Bus, Subway, Boat) to determine whether changes in these allocations are appropriate and to provide an opportunity for public comment on proposed major and moderate service changes.

The plan does not focus on the allocation of resources between the modes, nor on the allocation of capital funds. These are the focus of the MBTA's budgeting process and the Capital Investment Program, respectively.

PROPOSED SERVICE CHANGES

Since the 1998 Service Plan, the MBTA has continued to monitor and adjust service as required. Approximately 300 changes have been made between 1999 and 2001. The MBTA has, however, identified several major route changes which address issues and requests for service that can not be met by making minor adjustments, but rather require review by the general public and the MBTA Board of Directors before they can be implemented.

Particular attention has been paid to routes serving the North Shore because the 1998 Service Plan identified several routes in this region that performed very poorly on a net cost per passenger basis. Rather than recommend a large reduction in service, a North Shore corridor study was conducted to identify problems and options. The recommendations from that study are included as part of this plan.

This plan is designed to be resource neutral. The proposals are packaged together in a way so that each group is also resource neutral.

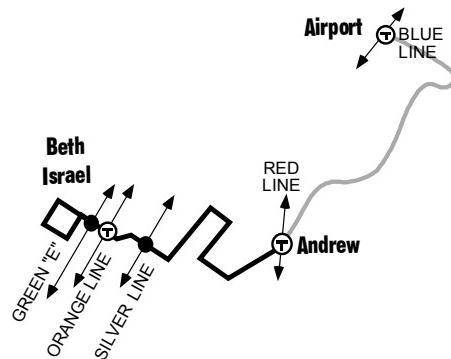
The recommended service change proposals are as follows:

CT3 Airport-Andrew Station
Route 1 Harvard-Dudley
Route 7 City Point-Downtown
Route 8 U Mass-Kenmore
Route 15 Kane Sq.-Dudley
Route 19 Fields Corner-Ruggles
Route 21 Ashmont-Forest Hills
Route 28 Mattapan - Ruggles
Route 41 Centre & Eliot-Dudley
Route 66 Harvard-Dudley

Proposed change:

The segment of Route CT3 between Andrew and Logan Airport via World Trade Center would be discontinued.

Early-morning connecting service on Routes 15 and 28 would also be changed. CT3 service between Andrew and Beth Israel would remain.

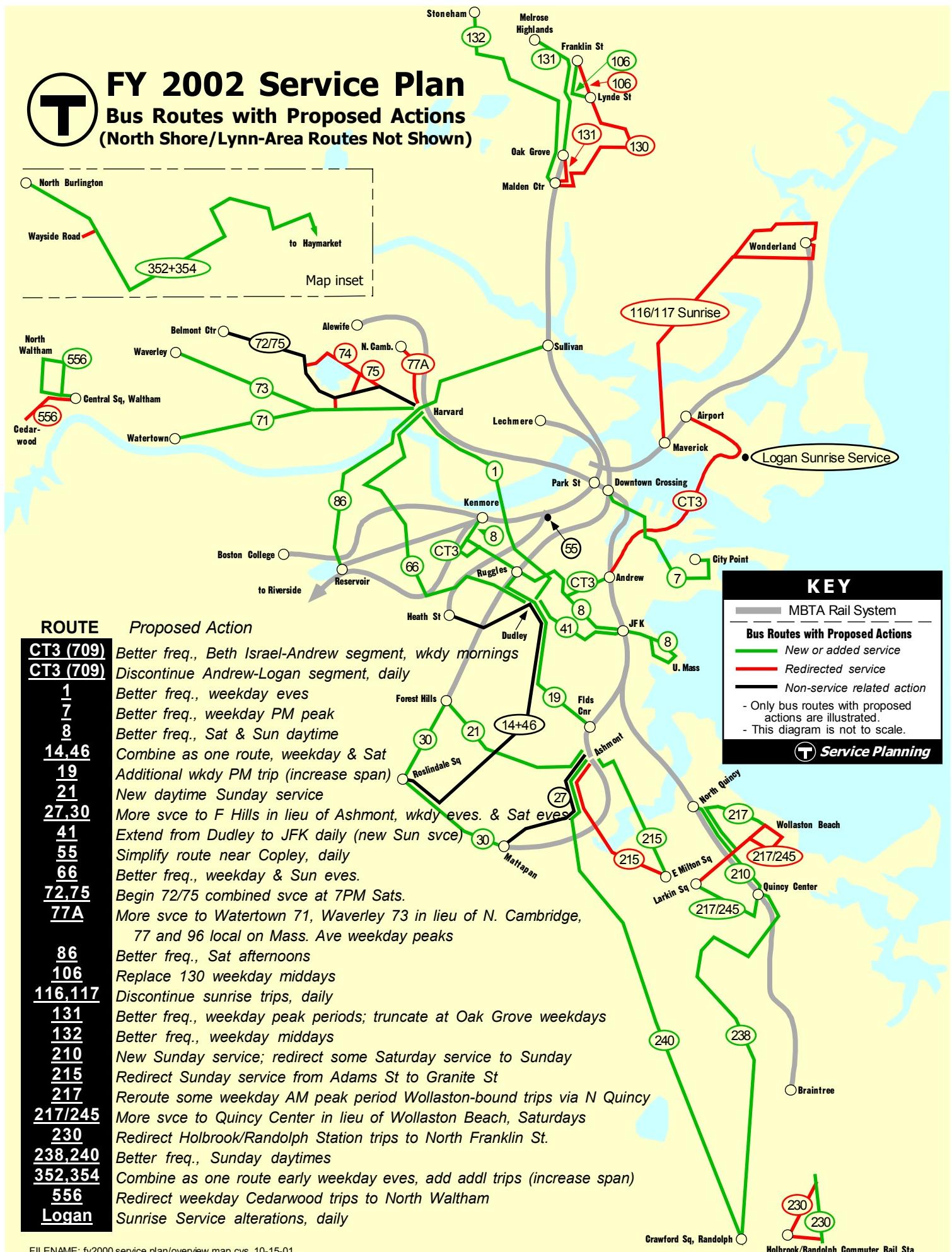


Ridership in this segment is low and the average cost per passenger is over \$12.00. This is well above three times system average, and makes this the least cost effective service in the MBTA bus network on a net cost per passenger basis.



FY 2002 Service Plan

Bus Routes with Proposed Actions
(North Shore/Lynn-Area Routes Not Shown)



Route 459 will continue to provide weekday peak and midday service between Downtown Crossing, World Trade Center, and Terminal C every 60 minutes.

Route 4 also provides a connection weekdays between the Blue Line and World Trade Center during peak periods. Present passengers traveling between Airport Station and World Trade Center may use this as an alternative.

There is however, one group of passengers on Route CT3 who would not be served by other routes.

To accommodate a small market, which has developed traveling to Logan Airport in the very early-morning, the present Monday-Saturday 4:28 AM trip from Mattapan to Haymarket via Fields Corner and Dudley would be extended to Logan Airport from Haymarket. An additional trip would also be added leaving Mattapan Monday-Saturday at 4:00 AM and traveling to Logan via Ashmont, Fields Corner, Dudley and Haymarket. In addition to preserving early-morning service from these areas to the airport, this trip would also provide earlier access to Downtown Boston.

The 4:44 AM Route 28 trip from Franklin Field Housing to Logan Airport would be replaced by a 4:40 AM trip from Mattapan to Dudley. The 3:30 AM and 4:09 AM trips from Mattapan to Dudley would be discontinued. The 3:36 AM and 4:06 AM Route 15 trips from Ashmont to Dudley via Fields Corner would be discontinued.

The MBTA will also consider adding additional weekday service to Route 459

from Downtown Crossing to Logan via World Trade Center.

The hours and resources saved by discontinuing this service would be used to initiate several improvements:

Weekday Improvements:

Route 1 Harvard-Dudley

Proposed change:

Improve service weekdays from 7:36 PM to 12:36 AM from a bus every 16 minutes to a bus every 13 minutes. It is estimated that 75 additional riders would use Route 1 during these hours with improved frequencies.

Route 7 City Point-Downtown

Proposed change:

Improve service weekdays to alleviate crowding between 5:15 and 5:55 PM from a bus every 10 minutes to a bus every 8 minutes.

Route 19 Fields Corner-Ruggles

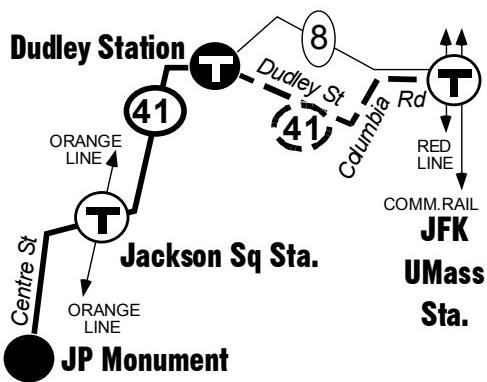
Proposed change:

Add a later departure from Ruggles at 7:20 PM. It is estimated that 25 riders would use this additional trip.

Route 41 Centre & Eliot-Dudley

In a significant expansion, this route would be extended from Dudley Station to JFK/U Mass Station via Dudley St., Uphams Corner, and Columbia Rd. Buses would operate every 15 minutes during the rush-hour and every 30 minutes during the midday and evening. This route would provide faster direct service between Dudley and JFK/UMass than is now possible on Route 8. The service would also supplement Route 15 between Uphams Corner and Dudley, and would provide an additional alternative to Routes 16 and 17 from Uphams Corner to the Red Line. Under

this plan, there would be direct one-seat service from Jamaica Plain Center, Jackson Sq., and Eliot Sq. to Uphams Corner and a Red Line connection at JFK/UMass station.



Route 66 Harvard-Dudley

Proposed change:

Improve weekday evening service from 8:50 to 10:50 PM from a bus every 25 minutes to a bus every 20 minutes. It is estimated that 30 additional riders would ride Route 66 during these hours with this improvement.

CT3 Andrew-Beth Israel

Proposed change:

Improve AM peak service from a bus every 20 minutes to a bus every 15 minutes. This improvement would help to alleviate crowding during the morning rush hour.

Weekend Improvements:

Route 8 U Mass-Kenmore

Proposed change:

Improve frequency of buses Saturday 10:00 AM-6:00 PM and Sunday 12:00 Noon-6:00 PM from a bus every 50 minutes to a bus every 35 minutes.

Background of proposal:

At hearings held in the Dudley Station area, improving the frequency of weekend Route 8 service was one the requests heard most frequently. This improvement would ease access to the South Bay Shopping Center.

It is estimated that an additional 140 passengers would ride Route 8 on Saturdays and an additional 85 would ride on Sundays.

Route 21 Ashmont-Forest Hills

Proposed change:

Initiate new Sunday service.

Sunday service would be introduced for the first time on this route. Service would be provided from 10:00 AM to 6:00 PM.

Background of proposal:

At hearings held in the Dudley Station area, requests for Sunday service on Route 21 was one of the requests most frequently heard. Presently there is no Sunday transit service in the section of Morton St. from Blue Hill Ave. to Norfolk St. Passengers in this segment must walk to Route 31 at Morton & Blue Hill or Route 26 at Morton & Norfolk. Passengers desiring to travel from Ashmont to Forest Hills must ride the high-speed trolley to Mattapan and transfer to Route 31.

Route 41 Centre & Eliot-Dudley

Proposed change Saturday and Sunday

In a significant expansion, this route would be extended from Dudley Station to JFK/U Mass Station via Dudley St., Uphams Corner, and Columbia Rd. Buses would operate every 40 to 45 minutes from 7:25 AM to 7:10 PM Saturdays and from 10:00 AM to 6:00 PM Sundays. This route would provide

faster direct service between Dudley and JFK/U Mass than is now possible on Route 8. The service would also supplement route 15 between Uphams Corner and Dudley, and would provide an additional alternative to Routes 16 and 17 from Uphams Corner to the Red Line. Under this plan, there would be direct one-seat service from Jamaica Plain Center, Jackson Sq. and Eliot Sq. to Uphams Corner and a Red Line connection at JFK/UMass station.

Route 66 Harvard-Dudley

Proposed change:

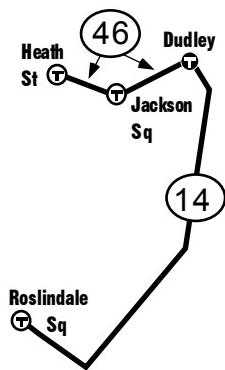
Improve Sunday service between 12: 00 Noon and 6:00 PM from a bus every 30/40 minutes to a bus every 20 minutes. It is estimated that 300 additional riders would ride Route 66 on Sundays with this increased frequency.

Route 14 Roslindale Sq.-Dudley

Route 46 Heath St.-Dudley

Proposed change:

Routes would be combined and operated as one through-route: Route 14 Heath St.-Roslindale Sq. via Dudley.



Buses would operate every 30 minutes during the rush hour and every 45 minutes during the middle of the day weekdays, and all day Saturdays.

The new through routing would provide one seat access from the Heath St. area,

Jackson Sq., and John Eliot Sq. to Warren St., Grove Hall, American Legion Highway and Roslindale Sq. Route 14 would also now have direct access to the Orange Line at Jackson Sq. Station and the VA hospital at Heath St.

Background of proposal:

Members of the community have approached the MBTA, expressing concern about the low-productivity of Route 46. Ridership per trip on Route 46 is very light, however the route does meet the MBTA's productivity criteria and was not a candidate for reduction or elimination. It is felt that this merger of routes would help increase ridership over both existing segments. There would be no cost increase or savings to the MBTA with this combination, resources would remain the same as operating two separate routes.

Frequency of service would remain the same as on both existing routes during the peak. Off-peak service on the present Route 14 segment would be improved from a bus every 60 minutes to a bus every 45 minutes, while off-peak service over the present Route 46 segment would be reduced from a bus every 30 minutes to a bus every 45 minutes. If this route combination proves popular, additional service can be considered.

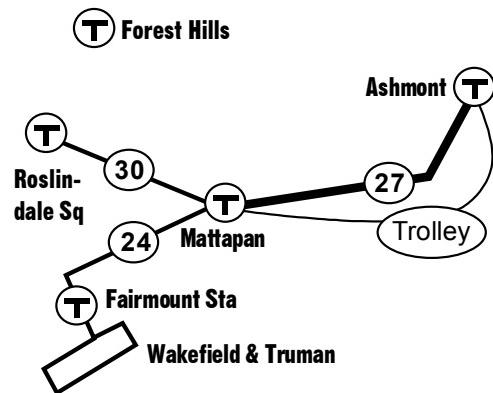
There would be a projected loss of 30 present midday Route 46 riders because of the longer frequency but an increase of 45 riders on the Route 14 segment because of the improved midday frequencies. Additional riders are expected to take advantage of the one-seat rides and Orange Line connection offered by the through-routing.

Route 27 Mattapan-Ashmont Route 30 Mattapan-Forest Hills

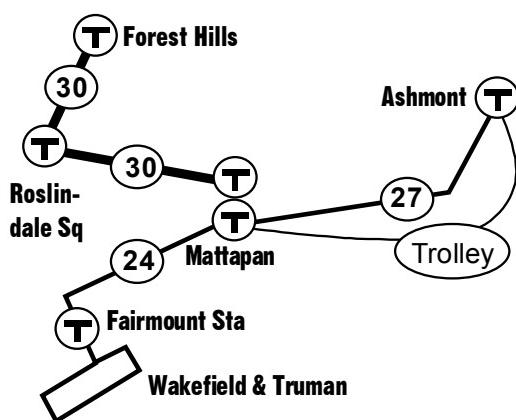
Proposed change:

Route 30 service after 7:00 PM
Weekdays and Saturdays would operate every 40 minutes between Mattapan and Forest Hills Station. Through service to Ashmont via Route 27 would be discontinued, however Route 27 would continue to operate every 60 minutes during this time period and would still be through-routed with Route 24.

Existing Service



Proposed Service



Background of proposal:

Members of the community have approached the MBTA about expanding the hours that Route 30 operates to Forest Hills. The last weekday trip on Route 30 operating through from Forest Hills presently leaves at 6:55 PM. Operating Route 30 to Forest Hills would also provide additional service between Forest Hills and Roslindale Sq. during the evening hours, and would supplement Routes 34 and 36 in this section.

Ridership on Route 27 is very light during the evening, and frequencies of every 60 minutes would be better suited to the demand. The most recent passenger counts show 50 weekday passengers boarding Route 30 buses at Ashmont. Of that number, close to half (23) were traveling beyond Mattapan. Passengers wishing to travel from Ashmont to locations along Route 30 would be able to ride the Mattapan-Ashmont trolley and transfer to Route 30 at Mattapan or travel to Forest Hills and board Route 30 there.

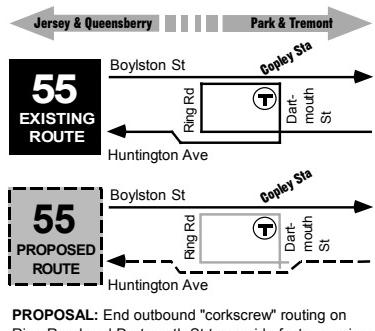
There would be no increase or decrease of service hours or costs with this change.

Route 55 Jersey & Queensberry Sts.-Park & Tremont

Proposed change:

The weekday outbound route would no longer traverse the Ring Rd.-Boylston-Dartmouth loop. This would reduce travel times from

downtown to the Fenway by nearly five minutes. Due to service redundancy in this area, passengers could use four remaining stops within a quarter-mile of the discontinued stops. Access from the Green Line would remain available on Boylston at Massachusetts Ave. next to Hynes Convention Center Station. Any time savings would be used improve frequency and reliability on Route 55. There would be no cost increase or savings with this change.



Evening and weekend service would be extended from Boylston & Dartmouth St. to St. James Ave & Dartmouth. The last inbound stop for the route at these times would be at Boylston & Clarendon while the first outbound stop (and layover for the bus) would be at St. James & Dartmouth. This change would provide one consistent Route 55 outbound stop for Copley Sq. (St. James & Dartmouth) for all times the route is operating.

Background of proposal:
Route 55 customers suggested the elimination of the Ring Rd. loop.

**Route 71 Watertown-Harvard Sq.
Route 73 Waverley-Harvard Sq.
Route 77A North Cambridge-Harvard**

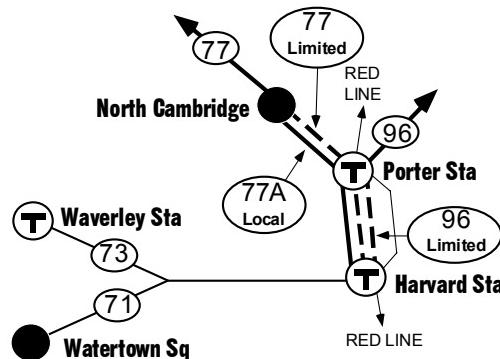
Route 77 Arlington Heights-Harvard

Route 96 Medford Sq - Harvard

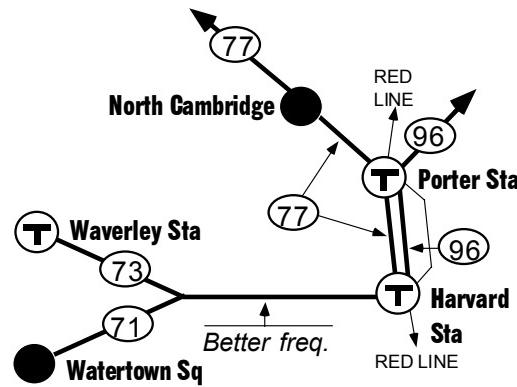
Proposed change:

Ridership on Route 77A is very poor. Route 77A would be discontinued except for inbound service between 4:35AM-7:12 AM and outbound service between 6:02 PM-8:34 PM. Route 77 would operate in local service at all times between North Cambridge and Harvard Square. Route 96 would operate local at all times between Porter Square and Harvard Square.

Existing Service Pattern



Proposed Service Pattern



Additional service would be added to Route 77 if this were required to accommodate the local ridership. Savings realized from Route 77A would be applied to improved service frequencies on Routes 71 and 73. Route

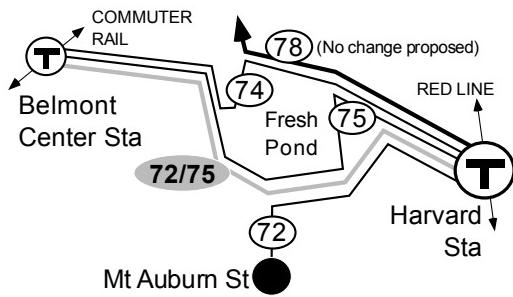
73 would run every 4 minutes during the peak periods in place of the present 5, and both Routes 71 and 73 would have frequencies improved between 7:30 PM and 9:00 PM to operate every 15 minutes.

This proposal would not result in savings to the MBTA, nor would it result in a reduction in trackless trolley service. This proposal would make more effective use of vehicle resources by shifting the lightly used trackless trolleys on Mass. Ave to the heavily used trackless trolley routes serving Mount Auburn Street, Belmont Street and Trapelo Road.

**Route 72 Huron Ave.-Harvard
Route 74 Belmont Center-Harvard
Route 86 Sullivan Square —
Cleveland Circle**

Proposed change:

After 7:00 PM Saturdays, Routes 72 and 74 would be replaced by Route 72/75 Belmont Center-Harvard. This would follow the same pattern as present Sunday service. The combined routing would provide later Saturday service to Huron Tower and to Belmont Center. Service would operate from Harvard to Belmont Center via Huron Ave. every 40 minutes from 7:00 PM to the end of service at 1:00 AM.



Background of proposal:

The MBTA has received requests for later Saturday service to Huron Tower and to Belmont Center. Ridership on both Route 72 and Route 74 is very low during this time period, and could not justify the extra resources required to operate additional service. Operating Route 72/75 would allow the MBTA to meet these requests without increasing the resources required.

Route 72 presently operates every 30 minutes to the end of service at 1:00 AM, while Route 74 runs every 60 minutes from 7:00 PM to 10:00 PM. Route 74 would not operate between the intersections of Concord Ave. & Huron Ave. and Concord Ave. & Blanchard Rd after 7:00 PM, however Route 78 would continue to serve this segment every 60 minutes.

The resources required would be reduced by 3 hours with this change. It is proposed that these 3 hours be added to Route 86 on Saturdays. The added resources would allow Route 86 to operate every 22 minutes instead of every 35 minutes between 2:00 PM and 5:00 PM on Saturdays.

**Route 92 Assembly Square —
Downtown
Route 93 Sullivan Square Station —
Downtown
Route 4 North Station-World Trade
Center.**

Proposed change:

At all times, except in the early morning and late evening, inbound trips on routes 92 and 93 would be modified to operate via Congress Street to a right turn on

Franklin Street. The remainder of the route would be unchanged.

Route 4 operating from North Station would be modified to stay on Congress from Haymarket Station straight through to Atlantic Avenue.

Background of proposal:

This change has been requested by MBTA Bus Operations due to the frequent congestion that occurs on Devonshire Street. Changing the route is expected to improve the reliability of these routes. This change is contingent upon approval from the City of Boston for bus stops on Congress Street between State Street and Franklin Street.

Route 106 Franklin Sq.-Wellington

Route 130 Lebanon St.-Malden

Route 132 Redstone Plaza-Malden

Proposed change:

During middays weekdays, Route 106 service to Franklin Sq. would be rerouted north of Lebanon St. via Park St., Linwood Ave., Grove St., and Main St. Melrose to replace Route 130. See a map of the proposed change on the next page. The rerouting would be subject to approval from the City of Melrose. Stops on Forest St. in Malden from Sylvan St. to Main St. would have no service during the midday. Route 130 would continue to operate rush hours and Saturday. Eliminating Route 130 in the midday would allow the frequency of Route 132 midday-weekdays to be improved from every 90 minutes to every 60 minutes.

Background of proposal:

Route 106 presently duplicates much of Route 130 in this area, and ridership does not justify two routes.

There would be no savings of resources from this change, the reduction of hours from Route 130 would be added to Route 132. Approximately 1 mile of Forest St. would not have bus service during the midday, this would require passengers to walk up to 1/2 mile from either Route 106 at Sylvan St. or routes 131/136/137 at Main St. Total weekday ridership in this segment is only 9 inbound riders and 6 outbound.

Route 116 Wonderland-Maverick

Route 117 Wonderland-Maverick

Proposed change:

Discontinue the 4:00 AM Route 117 trip from Wonderland to Maverick and the 4:25 AM Route 116 trip from Maverick to Wonderland.

Background of proposal:

This early trip was added as an experiment. Ridership has been very poor and the Logan TMA has initiated their own service following a similar route.

The 4:30 AM trip from Wonderland to Haymarket via Maverick will be retained.

Route 131 Melrose Highlands – Malden Center Station

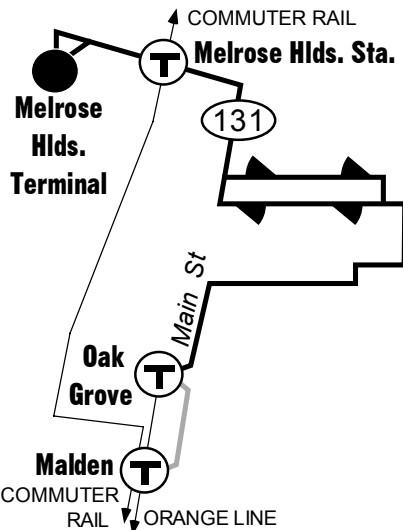
Proposed change:

Modify route to provide service between Melrose Highlands and Oak Grove Station only.

Background of Proposal:

This proposal would eliminate service on Route 131 between Oak Grove Station and Malden Center Station via Main Street. The shortened route would

allow service levels to be increased, without additional resources, during peak periods from every 30 minutes to every 20 minutes. The portion of the route that would no longer be served by Route 131 would continue to be served by Routes 136 and 137.



**Route 210 Quincy Ctr-North Quincy
Route 212 Quincy Ctr-North Quincy
Route 238 Quincy Ctr-Crawford Sq.
or Avon Line**

Route 240 Avon Line or Crawford

Sq.-Ashmont

Proposed change:

It is proposed that Route 210 service on Saturdays be reduced from a bus every 30 minutes to a bus every 60 minutes. The remaining service would be coordinated with Route 212 however, forming a trunk route every 30 minutes from North Quincy to Quincy, with trips alternating between Route 210 and Route 212.

It is proposed that the 8.5 hours saved on Route 210 on Saturdays be used to operate new Sunday service on Route 210 every 60 minutes between North Quincy and Quincy from 10:00 AM to

6:00 PM and to improve the frequency of buses on Routes 238 and 240 on Sundays from every 70 minutes to every 60 minutes from 10:00 AM to 6:00 PM.

It is estimated that 116 passengers would ride Route 210 on Sundays.

Route 215 Quincy Center-Ashmont

Proposed change:

Those trips on Sunday which presently operate via Whitwell and Adams would continue to operate via Whitwell St., but would be rerouted along the regular route between East Milton Sq. and Ashmont via Granite St instead of Adams St.

Background of proposal:

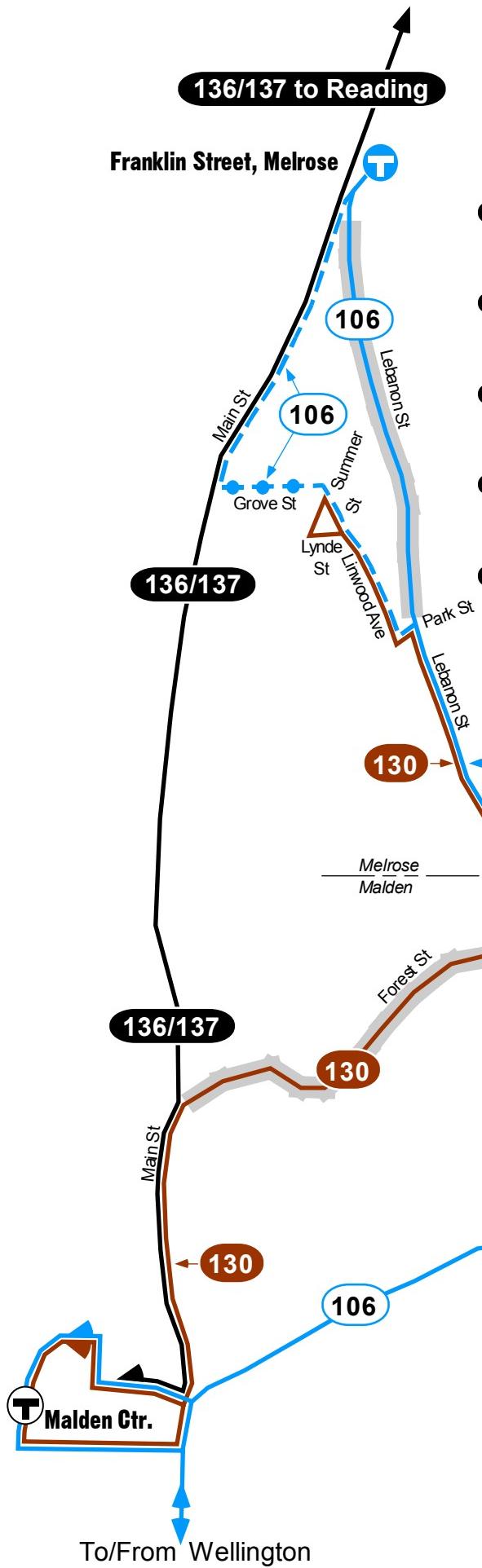
Most recent ridership information collected for this route on Sundays shows only 3 passengers inbound and 4 passengers outbound using stops on the section of Adams St. which would be bypassed. There is presently no Saturday service in this segment while Route 217 provides weekday service.

There would be no cost increase or savings with this change.

Route 217 Wollaston Beach-Ashmont

Proposed change:

Two outbound AM trips to Wollaston Beach would be rerouted to service the vicinity of North Quincy High School and Atlantic Middle School. Inbound service would continue to follow the regular route. Departure times would be adjusted to accommodate this change. Buses would leave Wollaston Beach at 5:20 AM, 6:20 AM, 7:00 AM, 7:35 AM, 8:11 AM, and 8:35 AM. Buses would leave Ashmont at 5:50 AM, 6:50 AM,



Proposal: 106 Replaces 130 Midday, Weekdays only

- Combined ridership on Routes 106 and 130 does not justify two routes during weekday midday
- Proposal is to replace the midday Route 130 by a modified Route 106 serving nearly the same route
- On average, about 15 Route 130 customers would be slightly inconvenienced
- However, on average, about 120 MBTA customers would benefit from the redirected service
- Forest Street, Malden and part of Lebanon Street, Melrose service would be redirected to Linwood Ave, Grove St, and Main Street, Melrose

KEY	
—	Existing Service
- - -	New Service on Existing Routing
• • •	New Service on New Routing
■ ■ ■	Redirected Service

7:30 AM, 8:05 AM, 8:41 AM, and 9:05 AM. The 6:50 AM trip from Ashmont would provide service from West Quincy to North Quincy High, and the 7:30 trip would provide service from West Quincy to Atlantic Middle School.

The two outbound trips operating via North Quincy would not service Beale St. east of Highland Ave., Wollaston Station, or Beach St. They would operate via North Quincy station where a connection to the Red Line can be made.

The two trips serving North Quincy High and Atlantic Middle School would follow regular Route 217 from Ashmont to East Milton Sq., then would operate via Adams St., r. Robertson St., r. Quarry St., l. Stedman St., to Bryant Ave @ Upton, l. Robertson St., l. Adams St., r. Beale St., l. Highland Ave., l. Wilson Ave., r. Harvard St., r. West Squantum St., North Quincy Station, East Squantum St., r. Newbury Ave., l. Hollis Ave., r. Faxon Rd., l. Billings Rd., then follow the regular route to Princess Eve. Dr.

There would be no change in afternoon or PM peak service.

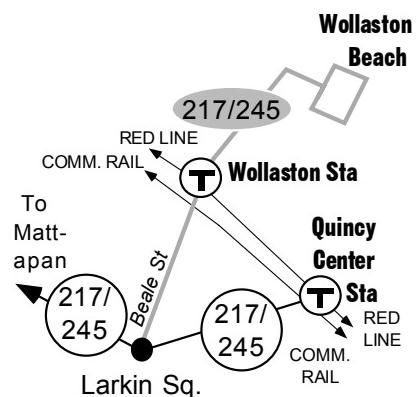
Background of proposal:

Route 217 presently does not meet the MBTA's productivity standards for bus routes. It is estimated that 90 additional riders would use the rerouted outbound trips. These additional riders are expected to improve the productivity levels of Route 217 from a cost of \$3.46 per passenger to an acceptable level of \$2.26 per passenger.

Route 217/245 Wollaston Beach-Mattapan (Saturdays only)

Proposed change:

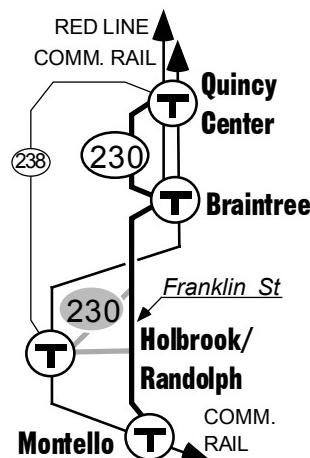
Route 217/245 would be discontinued because of poor ridership. Saturday service on Route 245 Quincy-Mattapan would operate every 60 minutes instead of the present 120 minutes.



Route 230 Quincy-Montello

Proposed change:

Service to Holbrook/Randolph station would be discontinued because of poor ridership.



Background of proposal:

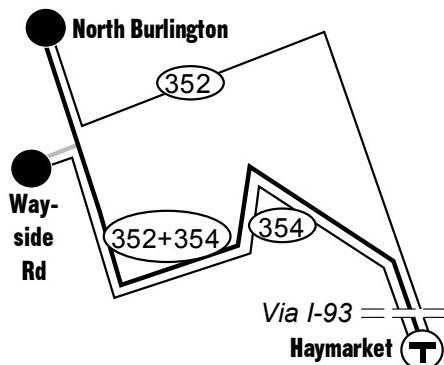
Recent field checks indicate that in the morning, a total of 2 passengers alighted at Holbrook/Randolph Station on the 3 trips provided. In the afternoon, 1 passenger alighted on the three trips provided. Passengers who board south of South St. and Washington St. are inconvenienced by the longer travel time to get to their destinations.

Route 352 Burlington-Boston Route 354 Woburn-Boston

Proposed change:

Service after 6:20 PM would be combined and operated as Route 352/354 Burlington-Boston via Woburn. The savings from combining these trips would allow for later trips to be added at 7:45 and 8:15 PM. The last trip on Route 352 is presently at 6:55 PM and the last trip on Route 354 is at 7:13 PM.

Service would not be provided on Wayside Drive on combined trips operating after 6:20 PM, but all other streets presently served by trips leaving Boston after 6:20 PM would continue to be served. Passengers traveling to stops served by Route 352 would see a slight increase in travel time, but this would be offset by the longer span of service and increased travel choices.



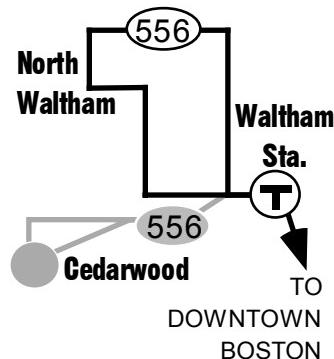
Background of proposal:

The MBTA has received requests for later service on both Routes 352 and 354.

Route 556 Waltham Highlands-Downtown

Proposed change:

It is proposed that the two AM peak inbound and 1 PM peak outbound trips which originate or terminate at Cedarwood be rerouted to Waltham Highlands.



Background of proposal:

The most recent ridership data for this route showed only 2 inbound passengers and 1 outbound passenger using stops along the segment of the route between Cedarwood and Hammond St. Operating all service to Waltham Highlands would offer more trip choices to Waltham Highlands patrons and simplify the timetable. Those passengers traveling to or from locations on the Cedarwood routing that wish to use Route 556 may board Route 70 and transfer at Central Sq. Waltham

There would be no increase or decrease in hours or costs of service with this change.

NORTH SHORE BUS IMPROVEMENT PROJECT RECOMMENDED SERVICE CHANGES

The following proposed changes are the recommendations from the North Shore Bus Improvement Project. This project was initiated because the 1998 Service Plan found that several North Shore routes were not in compliance with the Service Productivity guideline (i.e., it cost more than 3 times as much to carry a passenger on these routes than on an average bus route). Rather than recommending wholesale reductions in service, staff recommended a study to determine whether services could be reoriented to provide better access to destinations that would attract ridership.

A number of public meetings were held to get information about preferred destinations. In general, the public voiced an interest in improved access to newer employment centers (such as Centennial Park), medical facilities (Lahey Clinic, et al) and shopping centers (North Shore Mall, Liberty Tree Mall, WalMart, etc.).

The following proposals as a whole represent approximately a neutral impact on resources. There is significant interconnection between the proposals and changes in one area may preclude the ability to implement another proposal.

Route 426 Lynn-Boston via Clifftondale Sq.

Proposed change:

Weekday evening service would be improved to operate every 30 to 60 minutes and would be through-routed with Route 455 beyond Central Sq. to

Salem. Currently the frequency of evening Route 426 service is not consistent, this change would provide service at more consistent intervals. Buses would leave Haymarket every 30 minutes from 6:30 PM to 10:00 PM and every hour from 10:00 to midnight, with a last trip at 1:17 AM.

All service Saturday and Sundays would be rerouted to Wonderland Station as Route 426W instead of Haymarket. Only the local fare would be charged on weekends.

Current weekday service on Route 425 Central Sq. Lynn-Wonderland would be renumbered 426W, to be consistent with other route changes planned for the region.

Route 427 Granada Highlands- Haymarket

Route 428 Oaklandvale-Haymarket

Proposed change:

These routes would be combined. Route 428 buses would follow their present routing, but would deviate from Salem St. Malden to Granada Highlands and make all stops presently provided by Route 427.

Service would be made more consistent, with three trips operating inbound in the morning and three trips operating outbound in the PM peak.

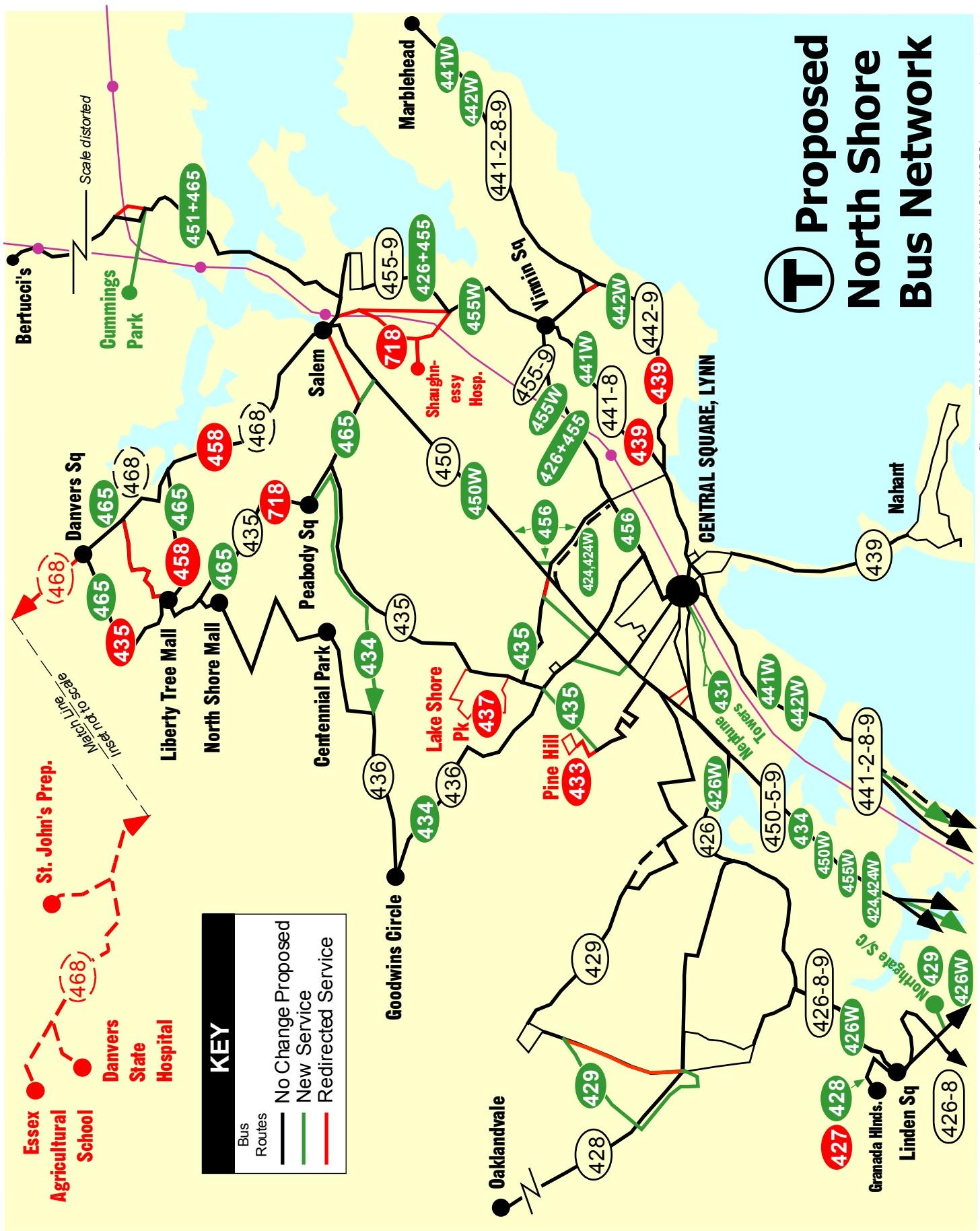
Buses would leave Oaklandvale at 6:40 AM, 7:20 AM, and 8:00 AM. They would stop at Granada Highlands after leaving Clifftondale Sq.

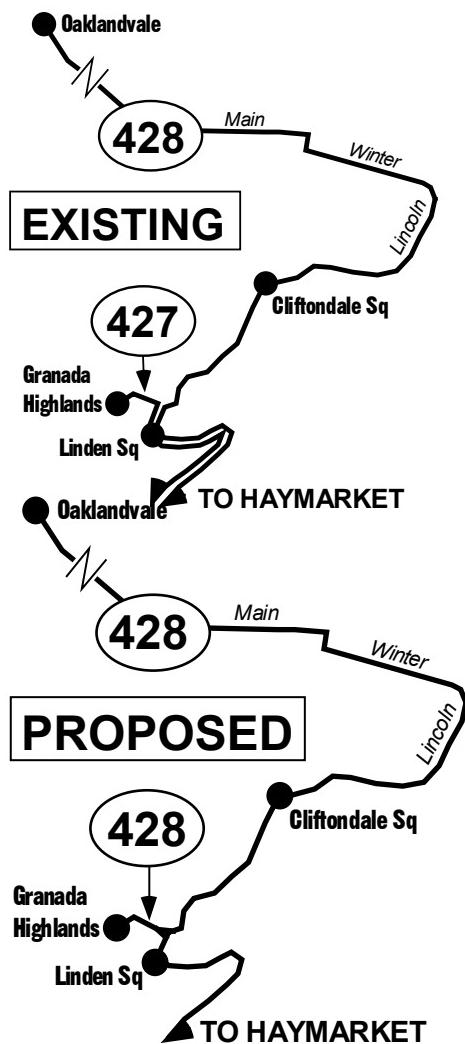
T Existing North Shore Bus Network



Proposed North Shore Bus Network

filename: FY2002 SERVICE PLAN/LYNN CHANGES/ proposed_system.csv





Buses would leave Haymarket at 4:50 PM, 5:20 PM, and 6:00 PM serving both Granada Highlands and Oaklandvale.

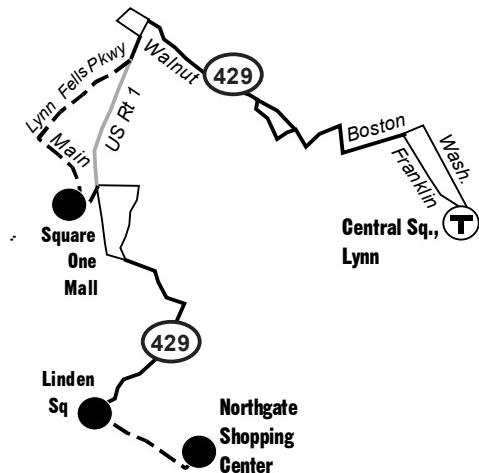
Both Routes 427 and 428 have very high per passenger costs, with each costing between \$5.37 and \$5.97 per passenger. Ridership on Route 428 is very low in the segment of the route unique to route 428 and not also covered by Route 426. Having Route 428 provide service to Granada Highlands would improve productivity overall to \$3.00 per rider, while preserving service for all riders.

Route 429 Central Sq. Lynn-Linden Sq.

Proposed change:

Service would be routed via Lynn Fells Parkway in Saugus to provide service to Oaklandvale and several retail stores presently without direct transit service. No present stops would be discontinued with this change. This change would provide service to a section of Saugus which presently only receives limited rush-hour service from Route 428.

Service would be extended from Linden Sq. to Northgate Shopping Plaza.



Sunday service will be improved from a bus every 90 minutes to a bus every 60 minutes.

Trip departure times would be adjusted to provide improved connections with other North Shore routes at Central Sq. Lynn.

Route 431 Central Sq.Lynn-Neptune Towers (new route)

Proposed change:

Service would be provided weekdays, Saturdays, and Sundays from Central Sq.

Lynn to Neptune Towers. This route would also serve Lynn Vocational High School. Most trips would be through-routed with Route 435, providing one-seat rides to the Boston St. shopping area, Peabody Sq., North Shore Mall, and Liberty Tree Mall. Service would operate from 9:00 AM to 4:00 PM.

Providing new service to the Neptune Towers area was requested at meetings held in the North Shore.

Service would operate hourly between 9 a.m. and 4 p.m. weekdays and until 7 p.m. weekends. Weekday service would have 1.73 off-peak hours of service and 20 miles of service. Estimated weekday riders are 40, and the cost per weekday rider would be \$2.80. Saturday service would have 2.1 hours of service and 25.5 miles of service. Ridership is estimated at 60 with a cost per passenger of \$2.24. Sunday service would have 2.4 hours of service and 28.05 miles of service. Ridership is estimated at 50 with a cost per passenger of \$3.15.

Route 433 Pine Hill-Central Sq. Lynn

Proposed change:

Because of poor ridership, Route 433 would be discontinued.

The Route does not meet the MBTAs present productivity standards. In 1998, costs were \$5.21 per passenger, well

over the three times the system-wide average cost per passenger at the time.

Because of the geographic isolation of the neighborhood from other MBTA service, limited service would continue to be provided to the Pine Hill area via several trips of Route 435. In the morning, one trip would operate from Peabody Sq. to Central Sq., Lynn via Pine Hill. Two return trips would be provided in the afternoon. Route 435 trips operating via Pine Hill would serve Parkland Ave., Linwood St., Ontario St., Tapley St., Woodlawn St., Pine Rd., Bellevue Rd., Lover's Leap Ave., and North Franklin St. Service would be discontinued on B St., Thistle St., Bass Road, and B St. Place. Customers boarding on these streets would need to walk to Parkland St. to reach the limited service provided by Route 435.

Service would also no longer be provided on Park St. or Mall St. The nearest service for these streets would be Route 429 on Boston St., Route 450 on Western Ave., and Routes 426 and 455 on Common St.

The trip on Route 435 operating via Pine Hill in the morning would leave Peabody Sq. at 7:15 AM and would reach B St. at Parkland approximately 10 minutes later.

Return trips on Route 435 operating via Pine Hill would leave Central Sq. at 3:15 PM and 5:45 PM.

Route 435 Central Sq. Lynn-Danvers

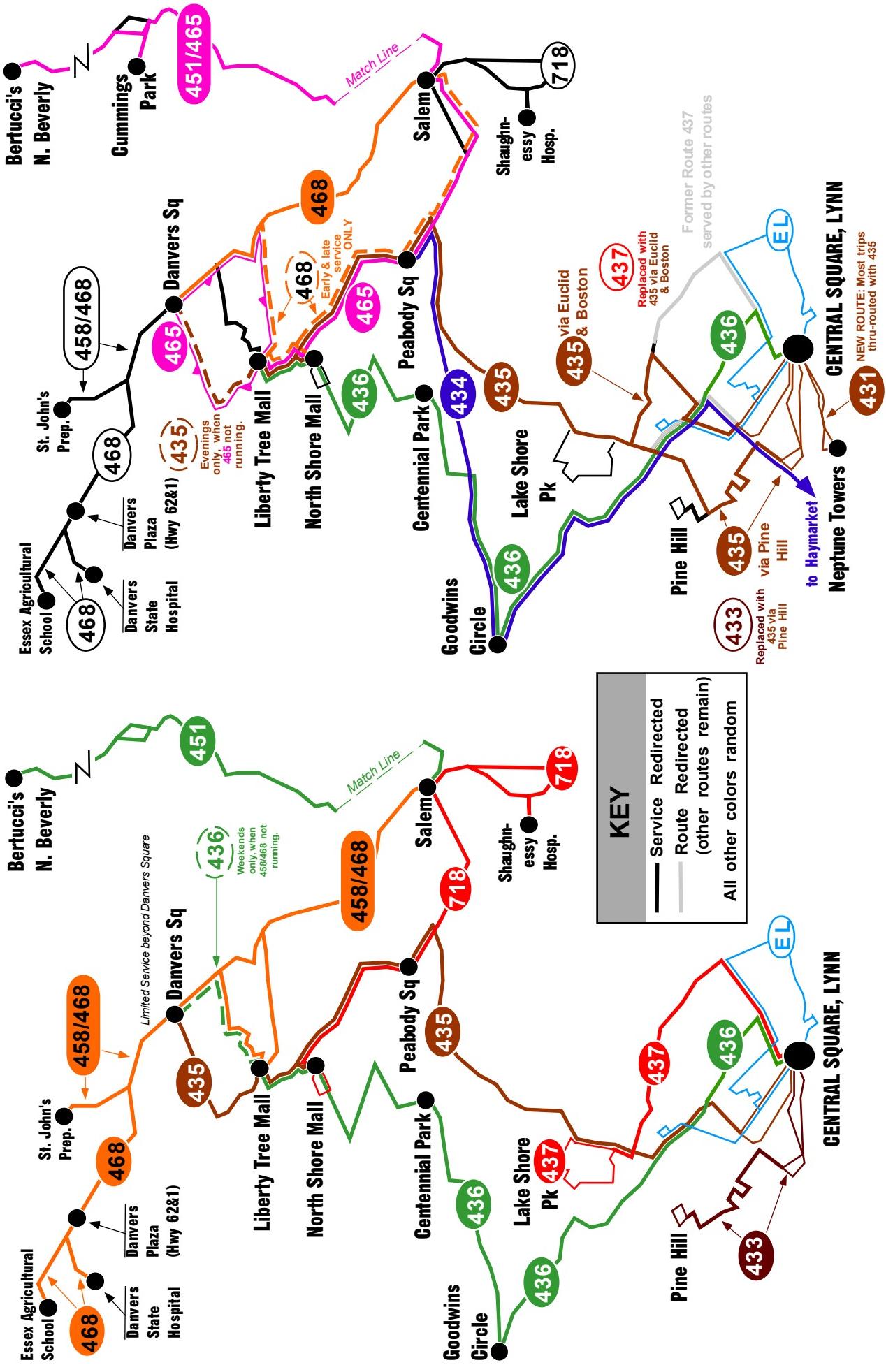
Proposed change:

Service would be rerouted between Washington St. @ Western Ave. and Broadway @ Euclid. Route 435 would

Lynn/Northside Bus Network

Existing

Proposed



now operate via Boston St., Maple St., and Euclid Ave. instead of Western Ave, and Chestnut St. in this section. This would provide new direct service to the supermarket and other businesses on Boston St. The section of Route 435 missed on Chestnut St. will still be served by Route 436, which will have more service operating direct to North Shore Mall and Liberty Tree Mall.

Service would be discontinued in the segment between Liberty Tree Mall and Danvers Sq. except for evenings. New Route 465 would now provide service between Liberty Tree Mall and Danvers Sq.

Route 435 would now provide more consistent service weekdays, with additional morning service and service every 60 minutes throughout the day.

One morning trip to Central Sq. and two afternoon trips would operate via Pine Hill in place of Route 433.

Total weekday passengers for Route 435 are estimated at 768 with these changes. The cost per passenger using 1998 costs would be \$2.39.

Route 436 North Shore Mall-Central Sq. Lynn

Proposed change:

All service after 9:00 AM would operate through to Liberty Tree Mall.

Frequencies would be coordinated with Route 435 between Liberty Tree Mall and Central Sq.

Saturday and Sunday service would operate only to Liberty Tree Mall instead of Danvers Square. New Route 465

would provide service Saturday between Liberty Tree Mall and Danvers Sq.

Route 436 service to Boston would now be given its own route number: Route 434. Route 434 would be extended from Goodwins Circle to Peabody Sq. via Lynnfield St. Route 434 would leave Peabody Sq. at 6:55 AM, and the return trip from Haymarket would leave at 5:20 PM.

Weekday hours of service would be 14.7 peak hours and 14.9 off-peak hours. Miles of service would be 340. Total weekday passengers for Route 436 is estimated at 779. The cost per passenger using 1998 figures would be \$3.04. While this is still relatively high, it would be an improvement compared to current service and would be less than three times the system average.

In addition to the recommended changes above, the MBTA is seeking comment on a proposal from the public to relocate service from Forest Street to Route 128. This would result in the elimination of service from the North Shore Cancer Center on Centennial Drive. The proponents feel that buses should not be operating on Forest Street and that the turn from Lowell Street to Forest Street is difficult to navigate.

The MBTA will consider comments on this proposal prior to rerouting this service.

Route 437 Lake Shore Park-Central Sq. Lynn

Proposed change:

Route 437 would be discontinued because of poor ridership. The route does not meet the MBTA's present

standard for productivity. In 1998, the cost per passenger was \$4.84. This was greater than three times the systemwide average for weekdays at the time.

Most parts of Route 437 however, would continue to receive service from other routes. Route 435 would now provide service on Euclid Ave. and new Routes 424 and 456 would provide service on Eastern Ave.

All service would be discontinued on the Lakeshore Park loop, with no service on Jenness St., Range Ave., Saunders Road, Lake Shore Road, and Bay State Road. According to counts taken in 1999, only 6 passengers per day board a bus in this segment. The nearest available service for these locations would be Route 435 on Broadway and Route 436 on Lynnfield St. located up to one-half mile away.

Route 439 Nahant-Central Sq. Lynn

Proposed change:

Midday through service to Swampscott would be discontinued because of poor ridership. Some midday service would remain between Nahant and Central Sq. where transfers can be made to Routes 441 or 442 for service to Swampscott.

Rush-hour service would continue to operate through to Boston, however service would now operate through via Route 426 and Saugus.

Route 441 Marblehead-Haymarket via Paradise Road

Route 442 Marblehead-Haymarket via Humphrey St.

Route 448 Marblehead-Downtown Crossing via Paradise Road

Route 449 Marblehead-Downtown Crossing via Humphrey St.

Proposed change:

A portion of weekday AM peak service on Routes 441 and 442 would terminate at Wonderland Station as Routes 441W and 442W. A large percentage of existing riders leave the bus at Wonderland to transfer to the Blue Line. Resources can be better allocated by terminating some service there. Morning service would continue to operate to Haymarket and Downtown Crossing. In the morning, Route 441 to Haymarket would operate every 60 minutes, Route 441W trips operating only to Wonderland would operate every 30 minutes, and two trips would operate on Route 448 to Downtown Crossing. Route 442 to Haymarket would operate every 60 minutes, Route 442W service operating only to Wonderland would operate every 30 minutes, and 3 trips would be provided on Route 449 to Downtown Crossing.

Service would be more consistent in the trunk sections of these routes, with service on Humphrey St. operating every 15 minutes and service on Paradise Road operating every 15 minutes.

Afternoon, PM peak, and evening weekday service would remain unchanged.

All Saturday and Sunday service on present Routes 441 and 442 would terminate at Wonderland Station as

Routes 441W and 442W. This would greatly improve the reliability of weekend service, as the route would no longer be vulnerable to traffic delays in the Callahan/Sumner tunnels or the Tobin Bridge. It would also allow for better coordination with other local North Shore routes at Central Sq. Lynn. Only the local fare would be charged on weekends.

Route 450 Salem-Boston

Route 424W Eastern & Essex-Wonderland (new route)

Route 424 Eastern & Essex-Haymarket (renumbered route)

Proposed change:

Evening service would operate on a more consistent 60-minute frequency and would operate later. After 8:00 PM, trips would leave Haymarket at 8:20 PM, 9:20 PM, 10:20 PM and 11:20 PM. Trips from Salem would leave every hour from 8:10 PM to 11:10 PM.

Service to Eastern & Essex Ave would be given its own route number: 424. This would make it easier for customers to identify which trips are going to Salem and which are going to Eastern & Essex.

Morning service From Eastern & Essex would operate to Wonderland Station instead of Haymarket. This would give passengers along Western Ave. the ability in the morning to transfer to the Blue Line. Service would operate every 30 minutes from Eastern & Essex to Wonderland. Evening service to Essex & Eastern would continue to operate from Haymarket.

Morning service would leave Eastern & Essex to Wonderland every 30 minutes from 6:01 AM to 8:01 AM.

PM peak service would leave Haymarket every 30 minutes from 4:10 PM to 5:40 PM.

All Saturday and Sunday service on Route 450 would terminate at Wonderland Station as Route 450W. This would greatly improve the reliability of weekend service, as the route would no longer be vulnerable to traffic delays in the Callahan/Sumner tunnels or the Tobin Bridge. It would also allow for better coordination with other local North Shore routes at Salem Depot.

Only the local fare would be charged on weekends.

The MBTA received many requests for improved access to Wonderland station at meetings held on the North Shore.

Route 451 North Beverly-Salem

Proposed change:

All trips would directly serve Cummings Park on Eliot St. Buses would slightly deviate from the present route, with no loss of present stops.

Trips which operate via Sohier Road would be rerouted to also operate via Tozer Road. This would provide new access to businesses on Tozer Road. Service would be discontinued on Sohier Road from Tozar to the Route 128 entrance. Buses operating via Tozar would also not serve Dodge St. from Route 128 to Tozar Rd. Dodge St. in this segment would continue to be served by Salem-bound buses in the morning and North Beverly-bound buses in the afternoon.

Most trips on Route 451 would be through-routed with new Route 465

Salem-Danvers via Peabody Sq. This would provide one-seat rides from Beverly to Peabody Sq., North Shore Mall, Liberty Tree Mall, Danvers Square, and Endicott Plaza.

Saturday Service would also be reintroduced on Route 451 between Beverly Sq. and Salem. There will be no Route 451 service between North Beverly and Beverly Sq. on Saturday, however the Beverly Shoppers and Commuter bus provides service to North Beverly on Saturday.

Route 455 Salem-Haymarket
Route 459 Salem-Downtown Crossing

Proposed change:

Some weekday AM peak trips on Route 455 would terminate at Wonderland Station as Route 455W. This would provide access to the Blue Line from locations served by Route 455.

In the morning AM peak, Route 455 buses to Haymarket would operate every 60 minutes, Route 455W buses to Wonderland would run every 30 minutes, and Route 459 buses to Downtown Crossing would run every 60 minutes. Between Salem and Central Sq., all three routes would be coordinated for a combined frequency of a bus every 15 minutes.

Afternoon and PM peak service would remain unchanged.

Evening service after 8:00 PM would be combined with Route 426. Buses would leave Haymarket every 30 minutes from 8:00 PM to 10:00 PM and every hour from 10:00 to midnight. Buses would follow Route 426 to Central Sq. Lynn, then from Central Sq.; they would follow Route 455 to Salem. Passengers

desiring to travel from locations in Revere to/from Lynn Common, Central Sq., Swampscott, or Salem after 8:00 PM would need to take Route 450 and transfer to Route 426/455 at Market Square.

All Saturday and Sunday Route 455 service would terminate at Wonderland Station. This would greatly improve the reliability of weekend service, as the route would no longer be vulnerable to traffic delays in the Callahan/Sumner tunnels or the Tobin Bridge. It would also allow for better coordination with other local North Shore routes at Central Sq. Lynn and Salem Depot. Only the local fare would be charged on weekends.

Route 456 Salem-Central Sq. Lynn
(new route)

Proposed change:

New Route 456 would be created to provide direct midday service from Central Sq. Lynn to Highland Ave. in Salem. Passengers would not have to transfer to Route 450 to reach locations along Highland Ave including Salem Hospital and a number of shopping establishments. The route from Lynn would follow the present Route 437 via Union St., Chestnut St., Olive St., Fayette St., Trinity Ave., Timson St, Eastern Ave. and Waitt Ave to Western Ave. From there it would follow Western Ave. and Highland Ave. to Salem Depot via the same route as Route 450.

Buses would leave Central Sq. every hour from 9:10 AM to 3:10 PM and would leave Salem Depot every hour from 9:40 AM to 3:40 PM.

Providing direct service from Central Sq. Lynn to Highland Ave in Salem was requested by the public at meetings held in Lynn.

Seven hours of off-peak service would cover 75 miles. 140 riders are projected, for an average cost per rider of \$2.87.

Route 458 Salem-Danvers Sq.

Route 468 Salem-Danvers

Route 718 North Salem-North Shore Mall.

Proposed change:

Routes 458 and 718 would be combined into new Route 465 Salem-Danvers Sq. via Peabody Sq., North Shore Mall, and Liberty Tree Mall. Service would leave Salem Depot and proceed on Essex St., to Boston St., to Main St. (Peabody), to Central St., to Andover St., into the North Shore Mall. Buses would stop both at the mall entrance and at Lahey Clinic. Buses would then proceed to Liberty Tree Mall. Buses would then operate in a one way loop from Liberty Tree Mall to Danvers Sq. and back via Sylvan St., Pine St., Hobart, Danvers Square, High St., Water St., and Endicott St. to Liberty Tree Mall. Service would operate every 60 minutes Monday-Saturday. Most trips would be through routed with Route 451 Salem-North Beverly, providing one-seat rides to Beverly.

Buses would leave Salem Depot every hour from 8:40 AM to 4:40 PM, Buses would return from Danvers every hour from 9:40 AM to 5:40 PM, with last trips at 6:15 PM and 7:15 PM.

Limited service would remain on Route 468 from Danvers Sq. to Salem via the direct route of High St., Water St.,

Margin St., and North St. to Salem Depot. Two trips would depart Danvers Sq. in the morning at 7:00 AM and 8:00 AM. There would also be a morning trip outbound from Salem at 7:20 AM to provide early morning service to Liberty Tree Mall. Return trips in the evening would leave Salem at 5:50 PM and 6:40 PM., upon reaching Danvers Sq., these evening trips would return to Salem via Route 465. Passengers desiring service from Salem to the malls or Peabody Sq. during these hours may stay on the bus when it reaches Danvers Sq. and ride back to Peabody.

All service on Route 468 north of Danvers Sq. to St. John's Prep, Essex Agricultural School, and the Danvers State Hospital site would be discontinued because of low ridership.

The section of Route 718 operating via Jefferson Ave. and Canal St. would be discontinued because of low ridership. When last checked by the MBTA, ridership per day averaged 4 passengers boarding and 11 alighting in this segment. The segment between Salem and North Shore Mall would be included as part of new Route 465.

Route 458/468 does not currently meet the MBTA's present standards for productivity. New Route 465 is expected to meet productivity standards.

SERVICE DELIVERY POLICY

The MBTA assesses the service it provides against a series of guidelines covering the following areas:

Performance Measure Summary

Measure	Issue
Coverage	Where should we provide service?
Span of Service	When does service begin and end?
Frequency	How often does service operate?
Schedule Adherence	Does the service run on time?
Loading	How crowded is the service?
Service Productivity	How cost effective is the service to provide? (Bus only)

The current Service Delivery Policy was developed in 1996 as a joint effort of the MBTA, the Executive Office of Transportation and Construction and the Conservation Law Foundation.

The 1998 Service Plan was the first such plan under the 1996 Service Delivery Policy. The 1998 Plan included a comprehensive evaluation of all services based on the guidelines in the 1996 policy. This plan makes some proposals to modify the 1996 policy. These modifications are aimed at making the policy more useful in prioritizing the need for service changes and making the policy more equitable.

Proposed Changes To Performance Measures

In particular, the schedule adherence and loading measures for bus service proved to be difficult to apply and did not provide any useful guidance toward effective reallocation of vehicle resources. In the case of the schedule adherence measure, the standards resulted in the non-compliance of all bus routes. Conversely, the loading guidelines were defined so broadly that even the most highly utilized urban bus routes were compliant at all times.

Schedule Adherence

The intent of the schedule adherence guideline was not only to prevent individual bus routes from operating substantially behind schedule, but also to prevent less frequent routes from running even slightly early. In particular, bus routes with frequencies better than every ten minutes were considered to be compliant if more than 85% of their trips during each time period arrived and departed within intervals of 1.5 times the scheduled headway. Bus routes operating less frequently than every ten minutes were considered to be compliant if more than 75% of the trips in each time period met both of the following criteria:

- Depart origin between zero and five minutes late
- Arrive at terminus between zero minute early and five minutes late

Time periods were defined as follows:

Weekday

Early AM: Start of Service – 6:59am
 AM Peak: 7:00am – 8:59am
 Midday: 9:00am – 3:59pm
 PM Peak: 4:00pm – 5:59pm
 Evening: 6:00pm – End of Service

Saturday/Sunday

Off Peak: All Day

In addition, for all bus routes, no more than 5% of the observed total trip times could be five or more minutes greater than scheduled trip times.

In the case of bus routes that operate less frequently than every ten minutes, these performance measures are unworkable for two primary reasons. First, the prohibition against arrivals even one minute early is too strict. Fluctuations of one to two minutes in running time can easily be caused by variability in a single traffic signal or by longer dwell times at bus stops where special needs passengers board. Second, the requirement that 75% of trips be on time in each time period is overly burdensome to lower frequency routes. For example, a route that operates every 30 minutes during peak periods would be non-compliant with the schedule adherence guidelines if more than one trip is not on time during either the AM or PM peak period.

Loading

While a number of MBTA bus routes operate with very heavy loads on multiple successive trips during weekday peak periods, application of the loading measure did not result in any routes being non-compliant in the 1998 Service Plan. Still, the deficiency of this

measure was not its definition of acceptable vehicle capacity, but rather its application to broad periods of the day instead of individual trips. In particular, the route-level loading guidelines allowed an average load of 100% of seated capacity during off peak periods and 140% during peak periods on local routes at the maximum load point over each of the time periods described in the section above.

All routes comply with the 1996 Service Delivery Policy load guideline because the standard applies to the average load during the entire period. If the loading guideline were applied to individual trips or trips during short periods of time, a number of bus routes would have failed this performance measure. In effect, the standard can mask real overcrowding.

Recommended Modifications to Performance Measures

As a result of the observations described above, the following modifications to the Service Delivery Policy guidelines are recommended.

Schedule Adherence

- Allow for arrivals at terminals up to two minutes early during periods when a bus route is operating less frequently than every ten minutes.
- The requirement that 75 percent of bus trips operate on time should be applied to the entire service day instead of each individual time period.

Loading

- Bus routes should be considered non compliant if average loads violate maximum load guidelines during any 30-minute segment of a peak period

- or any 60-minute segment of an off-peak period
- Bus routes with successive peak-direction trips that carry less than 10 passengers at the beginning or end of a service day should also be considered candidates for reductions to either span of service or frequency of service.
- For improved equity in the stated guidelines of the MBTA, express bus routes should follow the same loading guidelines as local buses. This will change the guideline from allowing no standees to allowing 16 standees on average during the peak 30 minutes.
- For improved equity in the stated guidelines of the MBTA, commuter rail lines should permit load levels equal to 110% of seated capacity rather than the current guideline that calls for no standees. This level of standees is not expected to interfere with onboard fare collection, nor is it expected to reduce demand for commuter rail service.

Recommendations for changes to Service Delivery Policy time period definitions

The following time periods more accurately reflect the times when higher passenger volumes are present.

- Begin AM peak period at the start of service and continue to 8:59am.
- Begin PM peak period at 1:30pm and continue to 6:29pm. The MBTA's afternoon peak period begins with the release of school.

- Off peak periods would be between the am and pm peak periods, after the end of the pm peak period and all day on weekends.

Recommendations for Changes to Service Delivery Policy regarding Service Plan Production Schedule

The Service Delivery Policy dictates that the MBTA develop an Annual Service Plan that will:

- Describe the effectiveness of existing services (as measured using the service guidelines);
- Describe proposed service levels for existing services;
- Present recommendations for major changes for new and revised services;
- Examine the effectiveness of last year's service changes;
- Present the results of evaluations of services with low ridership/high net cost; and
- Identify/summarize the steps needed for implementation.

Staff recommends modifying the policy as follows:

- Describe the effectiveness of existing services (as measured using the service guidelines) every 5 years. As technology is implemented to track vehicles and/or passenger utilization on a real time basis, the time interval for this measure should be reviewed.
- Drop the requirement to describe proposed service levels for existing services. The vast majority of existing services do not change. Changes of a minor or moderate

nature are modified through the quarterly schedule change process. Changes that result from major service changes will be presented as described below.

- Present recommendations for major changes for new and revised services annually. Conduct public meetings to solicit suggestions for major service changes and public hearings to present any major service changes recommended by staff.
- Provide a general review of the effectiveness of recent major service changes annually. Most major service changes require two years or more to achieve their ridership potential; as a result, reporting on last year's changes is likely to be ineffective.
- Present the results of evaluations of services with low ridership/high net cost every 5 years.
- Drop the requirement to identify/summarize the steps needed for implementation.

ENVIRONMENTAL JUSTICE

The Boston Metropolitan Planning Organization (MPO) has adopted the following definition of environmental justice:

"Environmental Justice requires the MPO to:

- examine the allocation of benefits and burdens, currently and in the planned future,*
- ensure that minority and low-income communities are treated equitably in the provision of transportation services and projects, and*
- provide full participation for minority and low-income communities to advise the MPO during its planning and decision-making process.*

The examination of Environmental Justice will include consideration of patterns of capital investment and allocation that have contributed to present conditions and inform current and future MPO decisions."

With regard to this plan, MBTA staff have been working closely with the Central Transportation Planning Staff and the MPO's Environmental Justice Ad Hoc Committee to '**ensure that minority and low-income communities are treated equitably in the provision of transportation services.**'

The Boston MPO uses the following measures to assess environmental justice aspects of transit services:

- vehicle load
- frequency of service
- schedule adherence
- transit amenities (including shelter availability)
- vehicle assignment (age, air conditioning, emissions profile)

The MBTA and CTPS are collaborating in an ongoing review of MBTA services in accordance with the measures defined by the Environmental Justice Ad Hoc Committee. For most measures, the available data tends to confirm that the MBTA is treating minority and low-income communities equitably in the provision of transportation services. A complete assessment of the environmental justice review completed to date can be found in the Boston MPO Transportation Plan 2000-2025. A few statistical highlights from each measure are shown below:

Vehicle Load: During the peak 30 minutes, passenger loads greater than 140% of seated load (the loading guideline) were found on 6.38% of Non-minority routes, 9.33% of Minority routes, 11.36% of Low Income routes and 6.4% of Non-Low Income routes. Much of the data does not reflect service improvements that have been made since 1998. During these intervening years, the data upon which these findings were based has been used to determine where service improvements are made. As a result, staff expects that as more data is collected, the relatively small disparity identified here will be rectified.

Staff has identified two Service Delivery Policy loading guidelines that it proposes to change to make them more equitable. These measures are the loading guidelines for Commuter Rail service and the loading guidelines for express bus service. Both of these guidelines currently call for no standees.

On commuter rail, the loading measure with no standees is intended to serve two

purposes. First, it provides for conductors to be able to move through the train to collect fares. Second, it was thought that providing a seat would be a necessity to draw suburban travelers from their automobiles onto trains to improve the region's air quality. Three of the 13 commuter rail lines were measured with peak 30-minute load factors that include standees. Three other lines were measured between 95% and 100%. It is recommended that the Service Delivery Policy be modified to allow 110% of seated load on commuter rail trains. This level of standees is not expected to interfere with onboard collection of fares and is also not expected to dissuade suburban travelers from using commuter rail.

The guideline that calls for no standees on express buses was thought to be needed to draw suburban travelers from their automobiles onto buses to improve the region's air quality and to reduce traffic congestion. Thirteen express bus routes currently exceed 100% of seated load. It is recommended that the loading guideline be adjusted to treat loading on express buses the same as on local buses.

Frequency of Service: The Environmental Justice Ad Hoc Committee has categorized bus service frequency as follows:

Very Frequent:	Every 1-15 minutes
Frequent:	Every 16-30 minutes
Less Frequent:	Every 31-60 minutes
Infrequent:	Less than every 60 minutes/limited service

The analysis completed for the Environmental Justice Ad Hoc Committee showed that the frequency of

service is greater for minority and low-income bus routes than for non-minority and non-low-income routes.

Schedule Adherence: Unfortunately, schedule adherence is fairly poor on both minority and non-minority bus routes and on both low-income and non-low-income bus routes. In all cases, this measure shows that only about 62% of the trips in each category meet the on time performance measure. This measure, as defined by the Environmental Justice Ad Hoc Committee, requires that trips depart 0-5 minutes late **and** arrive at their destination between 2 minutes early and 5 minutes late. A review conducted for the 1998 Service Plan showed that more than 90% of trips were leaving on time, but that one-third of arrivals were early, one-third were late and one-third were on time. Differing levels of traffic are a prime reason for this poor performance. MBTA staff have been modifying scheduled trip times where appropriate, but data often shows great fluctuation in trip times on successive trips on the same route. The institution of technology that will permit bus locations to be monitored remotely by MBTA dispatchers is expected to assist with more effective control of on time performance.

Transit Amenities: This measure includes the equity of shelter placement. No data has yet been published on this measure. The MBTA will continue to work with the Environmental Justice Ad Hoc Committee on this issue.

Vehicle Assignment: This measure incorporates measures of equity with regard to the age of vehicles assigned to minority and low-income routes as well

as whether these vehicles are equipped with air conditioning and the amount/type of emissions from the vehicles.

On average, the analysis found that buses used on minority and low-income routes are newer than on non-minority and non-low-income routes. On average, buses on minority and low-income routes had average ages of 7.99 and 7.5 years respectively, while buses on non-minority and non-low-income routes had ages of 10.98 and 10.31 years respectively.

A significant finding was that the cars used on the Dorchester Branch of the

Red Line had an average age of 12.5 years, while the Braintree Branch cars had an average age of 15.8 years.

Minority and Low-Income bus routes had 81.33% and 84.12% of their vehicles equipped with air conditioning respectively, while 62.25% of Non-Minority buses were equipped with air conditioning and 66.71% of Non-Low-Income buses were so equipped.

No analysis has yet been done with regard to emissions profiles. The MBTA will continue to assist in this effort in any way that it can.

APPENDIX A **SERVICE PLAN PUBLIC OUTREACH**

A major component of this service plan has been the public outreach process. Upon implementation of the 1998 plan, MBTA staff began to attend public meetings to determine what MBTA customers want with regard to service changes.

While many of these meetings were hosted by the MBTA, others were hosted by the City of Boston, the City of Cambridge and advocacy groups. In all, 25 meetings were attended by staff with the intent of obtaining input on service issues. Additionally, staff obtained input on service issues at the 8 public hearings that were held in the Summer of 2000 on the fare increase. A listing of all of these public meetings is included below.

The public meetings were helpful in generating a number of suggestions. At seven of these public meetings, the MBTA solicited suggestions as well as assistance from attendees in prioritizing the suggestions. The prioritization that resulted from these workshops has kept staff focused on where some members of the public see the most acute problems. Approximately 600 suggestions were provided, with multiple suggestions on many routes.

Service Related Public Meetings Held/Attended		
DATE	LOCATION	PRIMARY PURPOSE
10/22/98	Dudley Square Library (CBB)	Service Improvements
1/27/99	Dorchester—Kit Clark (CBB)	Service Improvements
2/23/99	Chelsea—Rocca Comm Hlth (CBB)	Service Improvements
3/10/99	Lynn—Multicultural Center	Service Plan
3/15/99	Lynn—North Shore CC	Service Plan
3/30/99	Lynn—GLSS Senior Center	Service Plan
5/12/99	Dudley Square Library	Service Plan
5/13/99	Dudley Square Library	Service Plan
5/20/99	State Transportation Bldg	Service Plan
5/27/99	State Transportation Bldg	Service Plan
7/27/99	Quincy City Hall	Sec./GM Mtg
9/14/99	Framingham	Sec./GM Mtg
10/19/99	Arlington Town Hall	Sec./GM Mtg
11/16/99	State Transportation Bldg	Sec./GM Mtg
1/11/00	Salem Nat. Park Visitor Center	Sec./GM Mtg
1/20/00	Cambridge City Hall (COC)	Service Plan
2/3/00	Dorchester Murphy Comm. Center (DANA)	Dorchester Transit Forum
7/18/00	Boston Copley Square Library (COB)	Access Boston
10/2/00	Boston Madison Park (COB)	Roxbury Master Plan
2/27/01	Dudley Square Library (COB)	Dudley Sq. Study
5/3/01	Allston/Brighton	Service Issues
5/10/01	Cambridge Senior Center (COC)	Service Issues
6/6/01	Dudley Square Library (COB)	Dudley Sq. Study
6/11/01	Peabody	North Shore MIS
6/13/01	Lynn North Shore Community College	North Shore MIS

In addition, 8 public hearings on the recent fare increase were held in June, 2000. These public hearings provided a significant amount of feedback on service issues. Hearings were held in Arlington, Boston (North Station, Federal Reserve Bank, Roxbury Community College), Malden, Newton, Quincy and Worcester.

CBB=Meeting hosted by Clean Buses for Boston

DANA=Meeting hosted by Dorchester Allied Neighborhood Association

COB=Meeting hosted by City of Boston

COC=Meeting hosted by City of Cambridge

The preliminary plan will be the subject of several community workshops and two public hearings that have been planned. The locations and dates are shown below. The purpose of these meetings is to obtain public comment on the contents of the preliminary plan. After those comments have been received, MBTA staff will modify the plan and present the revised plan to the MBTA Board of Directors for approval and authorization to implement the proposed changes. This same process was used for the 1998 Service Plan, when, as a result of public comment, staff modified more than half of the proposals and dropped many proposals altogether.

APPENDIX B PREVIOUSLY APPROVED CHANGES

Silver Line—Washington Street

In 2002, the MBTA will initiate this service between Dudley Square and Downtown with transit priority lanes, new 'stations,' a more direct route in both directions, new 60-foot articulated vehicles, more frequent service and information to let customers know when the next bus will arrive.

Silver Line—Transitway

In 2003, the MBTA will initiate service in a new bus tunnel between South Station and the South Boston Waterfront area in the vicinity of the World Trade Center. This service will feature 60-foot vehicles that operate on electric power between South Station and the D Street area of the Waterfront area. Beyond this area, the vehicles will operate on internal combustion engines that will permit them to serve Logan Airport and other locations that will not be electrified.

Blue Line Capacity Increase

The Blue Line is currently at capacity with some 57,000 passenger trips a day.

By 2004, the MBTA will increase the available capacity of the Blue Line by 35%. Over the past several years the MBTA has been working to extend station platforms so that the current four-car train operation can be upgraded to accommodate six-car trains.

The procurement for the cars required to operate six-car service has begun with a \$172 million agreement with Siemens to build 94 new cars. Under the agreement, delivery of the new vehicles would begin in 2003.

APPENDIX C

Review of the 1998 Service Plan

The 1998 Service Plan was the first such plan in many years and it included two primary objectives--the assessment of existing services in accordance with specific guidelines and the opportunity for the public to review proposed major service changes.

The assessment of existing services was completed in accordance with the then new Service Delivery Policy that had been approved by the MBTA Board of Directors in 1996. The assessment determined whether services complied with Service Delivery Policy guidelines in the following categories: on time performance, passenger loading levels, length of the service day and frequency of service. The plan made recommendations on whether or not to adjust service based on the available data.

The second objective, aimed at providing the opportunity to review of major service changes, was expanded for the 1998 draft plan to include all proposed changes, not just changes defined by the policy as major changes. In effect, the inclusion of all changes, rather than just the major changes as required by the Service Delivery Policy, resulted in delayed implementation of many minor improvements.

Many of the service changes in the 1998 plan were aimed at reducing crowding or improving on time performance. The general increase in transit ridership over the past several years has made it virtually impossible to isolate the impact of changes in service levels.

In draft form, the 1998 Service Plan included 174 proposed changes. Public comment was received at several public hearings on the plan and by letter and e-mail. As a result of public comment, staff modified more than half of the draft plan proposals in the final package of service changes that was approved by the MBTA Board of Directors.

RESULTS OF 1998 FURTHER STUDY PROPOSALS

A number of longer-term issues were identified for further study in the 1998 plan. The findings to date and proposed actions are summarized below.

Matching Fleet to Market

This issue involved examining the opportunities for using larger and smaller buses than the MBTA's traditional 40-foot bus. There are areas, such as in lower density suburban markets, where smaller vehicles offer advantages over larger vehicles. Similarly, there are a number of bus routes in the MBTA network that could make use of larger, articulated vehicles.

Smaller Vehicles

The MBTA currently contracts with several private operators to provide service using smaller vehicles where that is appropriate. The MBTA also provides subsidy to some suburban services that use smaller vehicles.

The MBTA, as a provider of regional transit service, has a service objective to provide service within one-quarter mile of areas with residential densities greater than 5,000 people per square mile. An analysis has shown that approximately 92% of the area contained within high-density census tracts is within one-quarter mile of a bus route or subway station. The MBTA's successful achievement of this goal with its directly operated vehicles indicates there is little need for smaller vehicles.

Finally, the cost of operation and maintenance of smaller vehicles is projected to be prohibitive. Staff recommends that smaller vehicles should continue to be used for contracted or subsidized services where that is appropriate, but that smaller vehicles should not be used for directly operated services.

Larger Vehicles

The MBTA would benefit from the addition of 60-foot articulated vehicles to its fleet. Several heavy urban routes experience crowding that could be minimized by the addition of this type of vehicle.

The MBTA has purchased 76 60-foot vehicles that will go into service in the next few years. Thirty-two of these vehicles will be used on the Transitway portion of the Silver Line, while seventeen are programmed for the Washington Street portion of the Silver Line. Additional 60-foot vehicles may be used on Route 39 (Forest Hills—Back Bay) and other high volume routes.

Improving Bus Schedule Adherence

The 1998 plan found that on an aggregate level, no route in the MBTA system met the requirements of the 1996 Service Delivery Policy. Customer research conducted at the time, however, showed that riders were largely satisfied with the timeliness of the bus service they received.

Staff has made approximately 75 schedule changes aimed at improving service reliability since the implementation of the 1998 Service Plan.

Included within this document is a proposal to adjust the Service Delivery Policy with regard to schedule adherence. In broad terms, data in 1998 showed that over 90% of bus trips departed on time (i.e., within 0-5 minutes late). Bus trip arrivals were approximately 1/3 on time (0-5 minutes late), 1/3 late (more than 5 minutes late) and 1/3 early (prior to the scheduled time). Many of the early arrivals were 1-2 minutes early, essentially the difference between getting a green light approaching the end of the line and getting a red light.

Staff has proposed an adjustment to the measurement that would allow trips to arrive up to 2 minutes early and not be considered early.

Staff will continue to monitor service and improve scheduled travel times as new data is made available.

Automating Passenger Data Collection

The 1998 plan identified the need to study the use of technology to collect ridership data. This would largely replace the present manual process.

Implementation of such a system requires a significantly more sophisticated communications system than currently exists at the MBTA. A specification to procure such a communication system has recently been bid in concert with a Computer Assisted Dispatch/Automatic Vehicle Location (CAD/AVL) system. Once these systems are in place, they will permit the MBTA to consider an automated passenger data collection system.

North Shore Bus Improvement Project

Four of the ten routes that failed the productivity standard in the 1998 plan were North Shore routes. Instead of implementing wholesale reductions in service that would likely drive ridership

down further, staff proposed a thorough examination of North Shore bus service patterns. This examination included an outreach program designed to help identify whether service was oriented to where people wanted to go and, if not, to provide advice to the MBTA on how to reorient these services.

A number of meetings were held in North Shore communities to support the North Shore Bus Improvement Study. The results of the study make up a significant portion of the changes proposed in this plan.

Dudley Station Area Service

The 1998 plan identified a significant portion of the bus service between Dudley and Ruggles as underutilized throughout the day.

A review of ridership and transfer activity was conducted for the MBTA to determine whether service in this corridor could be better matched to demand and any resources that were saved could be allocated to other services in the area.

A number of options for modifying service patterns have resulted.

In addition, there are several significant transportation activities currently underway in the Dudley Square area. Among these are the implementation of the Silver Line in 2002, the Dudley Square Transportation and Air Quality Study (by the Boston Redevelopment Authority and Boston Transportation Department) and the Roxbury Strategic Master Plan (by the Boston Redevelopment Authority). Each of these projects has had significant public involvement.

The MBTA currently provides service between Dudley Square and Ruggles Station on 8 bus routes. Dudley Square Station serves as a major bus-to-bus transfer point. Ruggles Station serves as an Orange Line connection and abuts Northeastern University. John D. O'Bryant High School, Madison Park High School, Roxbury Community College and the Reggie Lewis Center are other major origins/destinations between Dudley and Ruggles Stations.

Service along the Washington Street corridor between Dudley Square and Downtown is being improved as part of the Silver Line. These improvements, described above, are likely to reduce the demand for service between Dudley Square and Ruggles Station.

Meanwhile, even without considering the opportunities presented by the Silver Line, there have been many suggestions for changing the Dudley Square-- Ruggles Station service pattern.

The following suggestions are presented here for comment only. The MBTA has no plans for changing the existing service pattern, but is interested in public reaction to the following proposals. If any of these suggestions are found to have merit, they may be pursued in the future, but any changes would be subject to further public review. Some of the proposals are:

1. Operate Route 42 (Currently Forest Hills — Ruggles) as Forest Hills--Boston Medical Center at all times. This provides a one-seat ride to a major employment and patient care center. It also has the downside of forcing anyone along Route 42 who desires access to the Orange Line to either transfer at Dudley Square or travel to Forest Hills. (Proponent: MBTA Staff)
2. Reduce circuitous movements around Dudley Square by separating most inbound and outbound bus service. Create a new bus plaza on the south side of Malcolm X Boulevard. Buses coming from the direction of Grove Hall, Uphams Corner or Downtown would

continue to use the existing Dudley Square Station. Routes coming from the direction of Ruggles Station would stop at the new bus plaza and would not enter the existing station. These changes are expected to improve bus on time performance, reduce traffic congestion, improve intersection operation, bring vitality to the municipal center side of Malcolm X Boulevard. This change would also require many passengers to walk a greater distance to transfer between bus routes and would increase the number of pedestrian crossings on Malcolm X Boulevard. (Proponent: BRA/BTD Dudley Square Traffic and Air Quality Study)

3. Terminate one or more routes at Dudley Square. Taken to the extreme, all routes could terminate at Dudley Square and a shuttle could be initiated between Dudley Square and Ruggles. The time saved on any shortened route could be used to provide more service along the outer portions of these routes. For example, on Route 23:

Existing Sunday Peak Service operates as Ashmont – Ruggles every 16 minutes. This could be modified to Ashmont – Dudley every 12 minutes.

Route 66 Study: Harvard – Dudley Square

Route 66, with its very poor on time performance and significant number of passenger complaints was identified by the MBTA as a route of particular concern. The Congestion Management System of the Boston Metropolitan Planning Organization recommended a study of the corridor traveled by Route 66.

A draft study was produced in August 2001. The study consisted of developing an understanding of the existing conditions, both physical and operational, and analyzing alternative improvement measures.

Among the findings are that Route 66 is intersected by a number of major traffic routes that have heavier and higher priority movements. Forty of the intersections that the route traverses are controlled by a traffic signal. Lane obstructions resulting from commercial truck activity and improperly parked vehicles are typically present along the route. Pedestrian conflicts are also common. The combination of these characteristics contribute to numerous delays in bus service, resulting in poor schedule adherence and, consequently, crowding.

Recommendations for improving service on Route 66 are in three general categories: bus service, roadway/intersection and parking. The MBTA has implemented a number of the bus service recommendations since the study was initiated. We will continue to implement these changes as they are reviewed and approved. In addition, the MBTA will continue to work with Boston, Brookline, Cambridge and the Metropolitan District Commission to implement other recommendations where possible.

Other Further Study Proposals

Several other further study proposals were identified in the 1998 plan. Among these was the need to provide analytical support for the siting of the Arborway Garage and for Mattapan High Speed Line service options. Other items for further study included a potential review of Long Island bus service and review of new market areas.

APPENDIX D

Summary of service changes made between 1999 and 2001

The MBTA has made changes on an on-going basis in response to issues on multiple routes. Changes are made based on ridership data collected, requests from MBTA officials in the field, and in response to complaints or comments from the riding public. Almost 300 changes have been made between 1999 and 2001. These changes are summarized below by basic type of change.

Network Modifications

This section identifies 44 changes that were made to the MBTA route network between 1999 and 2001. These changes include new routes, new services in areas where none previously existed (e.g. new Sunday service), or realignment or routes that resulted in major changes to customers. No routes were eliminated or cutback in this time period.

Route	Time Period	Changed	Description
03	Weekday	Winter 99	Route extended to City Point. Equipment interlined with Route 11.
03	Weekday	Spring 00	PM peak inbound service rerouted to operate via Broadway Station.
04	Weekday	Fall 98	New Route (North Station-World Trade Center) initiated September 1998.
07	Weekday	Spring 00	PM peak inbound service to Downtown, rerouted to serve Boston Marine Industrial Park.
07	Weekday	Summer 01	Modified the outbound routing to service the Harbor Industrial Park and East First St.
09	Weekday/ Saturday/ Sunday	Summer 99	Inbound service to Copley Sq., rerouted via East Berkeley St. in response to changed traffic patterns over the Broadway Bridge.
15	Weekday/ Saturday/ Sunday	Fall 99	New early morning service added from Ashmont to Dudley via Route 15 with connections to Route CT3 service to Logan Airport. Added 3:36AM and 4:06AM inbound trips.
15	Weekday	Winter 01	Service extended from Kane Sq., to St. Peters Sq. between 10:00 AM and 3:00 PM
16	Weekday	Fall 00	Modified all AM peak outbound trips to operate via Franklin Park.
20	Weekday	Fall 00	Modified trips after 4:00 PM for evening service to provide service to the Keystone Apartments
28	Weekday/ Saturday	Fall 99	Added new early-morning service to Dudley Station, including 3:30AM and 4:09AM inbound trips from Mattapan and a 4:44AM inbound trip from Franklin Field. These trips

Route	Time Period	Changed	Description
32	Weekday	Spring 00	meet CT3 buses to Logan Airport at Dudley Station, providing access to early-morning work-shifts at Logan. The 7:39AM outbound and 4:17PM inbound trips were rerouted to serve the Pacific Rim school.
34E	Sunday	Summer 01	Sunday service began operating via Dedham Mall from 11:15AM – 6:15PM.
36	Weekday	Fall 99	Service on 18 trips was extended from Charles River to the Rivermoor Industrial Area from 5:38 AM to 6:42 PM, with an additional trip at 10:45 PM outbound and 11:10 PM inbound.
37/38	Saturday	Winter 99	Changed 3 inbound and 3 outbound Route 37 trips between 5:30 AM and 7:30 AM to Route 37/38. Route 37/38 operates between Baker & Vermont and Forest Hills via Centre St. and Faulkner Hospital.
70	Weekday	Winter 99	Extended evening service from Central Sq. to University Park.
94	Weekday	Fall 00	Two trips at 6:46AM & 7:09AM from Davis Sq. were modified to serve Medford High School.
94	Weekday	Winter 01	7:25 AM outbound trip modified to run via Medford High School and the 6:46 outbound trip resumed the regular route.
106	Saturday	Summer 00	Modified all trips before 9:00 PM to operate via Forest & Sylvan streets in Malden.
106	Weekday	Fall 00	Modified all trips to operate via Forest and Sylvan streets in Malden.
106	Weekday	Fall 00	Between 8:00 AM and 3:20 PM, service extended beyond Lebanon St. to Franklin Sq. Melrose, to provide service to Melrose-Wakefield Hospital. This is a trial service.
111	Weekday	Winter 01	AM peak, PM peak and evening trips extended from Woodlawn to Revere Center (Broadway & Park Ave.)
114	Weekday	Fall 99	Added new AM peak service from Bellingham Square to Maverick Station every 10 minutes. Routes 116 and 117 only discharge passengers inbound from Bellingham to Maverick when Route 114 is operating.
114	Weekday	Winter 99	Added new midday service every 45 minutes from Maverick Square to Mystic Mall.
117 197	Weekday/ Saturday/	Fall 99	Added a 4:00AM inbound trip on Rte. 117 to Maverick and a 4:30 AM

Route	Time Period	Changed	Description
	Sunday		Monday-Saturday trip (Route 197) through to Haymarket for earlier service.
191, 192, 193, 194	Weekday/ Saturday	Fall 99	Early-morning "sunrise" service included in schedules for service from Mattapan to Haymarket (191), Cleary Sq. to Haymarket (192), Watertown to Haymarket (193), and Clarendon Hill to Haymarket (194).
193	Weekday	Spring 01	Modified the outbound routing to follow Rte. 57 from Kenmore to Brighton Center .
220	Weekday	Summer 00	Added new service to the Hingham Shipyard to connect with the Hingham ferry.
220	Weekday	Summer 01	Route no longer provides service to the Harbor Light Mall (closed).
230	Weekday/ Saturday/ Sunday	Winter 00	Route extended from the Holbrook/Brockton town line to Montello Station.
230	Weekday	Winter 00	Began operating 3 morning trips and 3 evening trips via Holbrook/Randolph Station on a trial basis.
236	Sunday	Fall 99	Added new Sunday service.
425	Weekday	Summer 99	Began new Route 425 service during the AM peak from Central Sq. Lynn to Wonderland via Cliftondale Sq.
426	Sunday	Winter 00	Modified outbound route to operate via Washington Ave. between Sargent St. and Squire Road.
427	Weekday	Summer 00	Route 426 service to Granada Highlands was redesignated as Route 427. Customers had requested a separate designation to reduce confusion identifying their bus.
428	Weekday	Summer 00	Route 426 service to Oaklandvale was redesignated as Route 428. Customers had requested a separate designation to reduce confusion identifying their bus.
436	Weekday	Fall 99	AM and PM peak service extended to North Shore Mall via Centennial Park. Midday service extended to Centennial Park.
436	Saturday/ Sunday	Fall 99	Route modified to operate via Centennial Park.
436	Weekday	Fall 00	Changed the departure time of the 6:50 AM trip to Central Square to 6:45 AM and changed its terminus from Central Sq. to Summer/Blossom Streets.
500	Weekday	Summer 01	Modified evening service after 7:00 PM to serve Washington St. between Newton Corner and West Newton.
CT2	Weekday	Fall 00	CT2 extended from Kendall Sq. to Sullivan Sq. via Union Sq. Somerville.

Route	Time Period	Changed	Description
CT3	Weekday	Fall 99	Added the 4:00AM, 4:30AM, 5:00AM, 5:30AM, 6:00AM & 6:30AM trips to Logan Airport from Dudley and the 5:10AM, 5:40AM and 6:10AM trips from Logan Airport to Dudley. These buses connect with early service on Routes 15 and 28 at Dudley.
CT3	Saturday/Sunday	Fall 99	Added new weekend service from Andrew Station to Logan Airport. Early-morning trips run through from Dudley Station.
Night Owl Buses	Friday and Saturday nights	Fall 01	Implemented new night bus network from 1:00 AM to 2:30 AM Friday and Saturday nights.

Loading and Utilization-Service Increases

The following service had frequency improvements made between 1999 and 2001 in response to concerns of crowding conditions. Changes include adding vehicle resources to increase frequency or shifting trip departure times to better address loading needs without increasing resources required. There were 124 changes of these types made between 1999 and 2001.

Route	Time Period	Changed	Description
01	Weekday	Winter 01	Improved AM peak frequency from a bus every 8.5 minutes to a bus every 8 minutes.
01	Saturday	Winter 01	Improved frequencies 10:00AM–8:00 PM from a bus every 11 minutes to a bus every 10 minutes.
04	Weekday	Winter 01	AM and PM peak service improved from a bus every 17.5 minutes to a bus every 15 minutes.
07	Weekday	Spring 00	PM peak frequencies improved from a bus every 12 minutes to a bus every 11 minutes.
07	Weekday	Winter 01	AM peak service frequency improved between 8:00AM and 8:30AM from a bus every 8.5 minutes to a bus every 4 minutes.
07	Weekday	Winter 01	PM peak frequencies improved from a bus every 11 minutes to a bus every 10 minutes.
09	Weekday	Spring 00	Added an 8:12AM & S 8:04AM inbound trip between City Point and Broadway. Added a 4:53PM outbound trip between Broadway and City Point.

09	Weekday	Fall 00	Added an AM trip at 7:12 AM inbound from City Point to Broadway
09	Weekday	Spring 01	Extended the 8:04 AM and 8:12 AM City Point-Broadway trips to Copley.
09	Weekday	Summer 01	AM peak frequency improved from a bus every 8.5 to a bus every 7.5 minutes.
09	Weekday	Proposed-Winter 02	Outbound frequencies to City Point improved between 5:00 PM and 5:25 PM from a bus every 11 minutes to 8 minutes.
10	Weekday	Winter 01	Added additional outbound trips from Copley to Andrew at 8:30 AM and 8:50 AM
10	Weekday	Spring 01	Added an 8:45AM outbound trip from Copley to Andrew.
15	Weekday	Fall 00	Improved the AM peak frequencies from a bus every 6 minutes to a bus every 5.
15	Weekday	Fall 00	Improved the PM base frequencies from a bus every 15 minutes to a bus every 12 minutes.
15	Weekday	Winter 01	Service frequency improved between 3:00 PM and 5:00 PM from a bus every 12 minutes to a bus every 10 minutes
15	Weekday	Fall 01	Added an additional round trip on school days from Dudley to Kane Sq., leaving Dudley at 2:40 PM and Kane Sq. at 3:10 PM.
15	Weekday	Proposed-Winter 02	Added an additional trip on school days from Ruggles to Kane Sq. at 3:20 PM.
15	Weekday	Proposed-Winter 02	Improved frequencies between 4:55 PM and 5:25 PM from every 10 minutes to every 9 minutes.
15	Weekday	Proposed-Winter 02	Improved frequencies between 8:00 PM and 10:00 PM from a bus every 30 minutes to a bus every 20 minutes.
15	Saturday	Proposed-Winter 02	Improved frequencies between 2:00 PM and 6:00 PM from a bus every 16 minutes to a bus every 12 minutes.
16	Sunday	Winter 01	Improved frequency 1:00 PM to 4:30 PM from a bus every 50 minutes to a bus every 30 minutes.
16	Sunday	Summer 01	Improved frequency 9:00 AM to 1:00 PM from a bus every 50 minutes to a bus every 30 minutes.
16	Weekday	Proposed-Winter 02	Add a school day trip from Dudley to Franklin Park at 6:58 AM.
17	Weekday	Winter 01	Added an additional outbound trip at 6:05 PM
21	Weekday	Fall 00	Modified the frequencies from 6:30AM – 7:30AM from a bus every 11 minutes to a bus every 9.
21	Weekday	Fall 01	Added additional inbound trips at 6:10, 6:20, and 6:30 AM.

22	Weekday	Fall 01	Added an additional outbound trip on school days from Ruggles at 2:40 PM AM peak frequencies before 7:30 AM improved from a bus every 5 minutes to a bus every 4 minutes.
23	Weekday	Fall 99	Late morning and early afternoon frequencies improved from a bus every 13 minutes to a bus every 12 minutes.
23	Weekday	Fall 00	Added a 6:20AM inbound trip to Ruggles and two inbound trips at 6:32AM & 6:42AM to Dudley..
23	Weekday	Winter 01	Improved frequency in the late afternoon from a bus every 10 minutes to a bus every 9 minutes
23	Saturday	Winter 01	Improved frequency 9:30 AM – 3:00 PM from a bus every 11 minutes to a bus every 10 minutes.
23	Weekday	Proposed-Winter 02	Improved frequencies between 7:40 PM and 9:40 PM from every 20 minutes to every 15 minutes.
23	Weekday	Proposed-Winter 02	Improved frequencies between 1:30 PM and 4:11 PM from a bus every 9 minutes to a bus every 8 minutes.
24	Weekday	Spring 99	Added the 5:44PM outbound and the 6:02AM inbound trips.
28	Weekday	Fall 00	Improved service from 6:30AM – 7:30AM from a bus every 7 minutes to a bus every 6 minutes.
28	Weekday	Winter 01	Added an additional trip from Townsend & Warren to Ruggles Station at 2:05 PM.
28	Saturday	Winter 01	Improved frequency 2:00 - 4:30 PM from a bus every 9 minutes to a bus every 8 minutes.
28	Weekday	Spring 01	Shifted the AM peak service earlier to address with school period crowding. Shifted trips so that a 6 minute frequency begins at 6:06AM instead of 6:26AM. Reduced service from a 7 minute frequency to an 8 minute frequency between 8:50AM and 9:45AM to account for the early increase in service.
29	Weekdays	Fall 01	Shifted the 3:00 PM outbound trip from Jackson Sq. to begin at Ruggles at 2:55 PM.
30	Weekday	Fall 00	Added an additional trip school-days only at 6:40AM from Roslindale Sq. to Mattapan.
30	Weekday	Spring 01	Added a 6:30AM inbound trip from Mattapan to Forest Hills.
30	Weekday	Fall 01	Added an inbound trip on schooldays from Cummins Highway at Brown St. to Forest Hills at 2:22 PM
30	Weekday	Proposed-	Improved frequency between 4:00 PM

		Winter 02	and 6:00 PM from a bus every 30 minutes to a bus every 20 minutes.
31	Weekday	Fall 00	Improved the frequency from 5:50AM – 7:30AM from a bus every 7 minutes to a bus every 6 minutes.
32	Sunday	Winter 99	Improved frequencies 3:30 PM-8:00 PM from a bus every 30 minutes to a bus every 15 minutes.
32	Weekday	Fall 99	Added an extra 2:00PM inbound trip on school days from Cleary Sq. to serve Hyde Park High.
32	Weekday	Winter 00	Added an extra outbound 2:55 PM trip on school days.
32	Weekday	Winter 00	Improved frequencies 8:00 PM-11:50 PM from every 30 minutes to every 10-15 minutes.
32	Weekday	Winter 01	Added an additional inbound trip from Cleary Sq. at 1:58 PM to serve Hyde Park High.
32	Saturday	Proposed-Winter 02	Improved frequencies 7:35 PM-10:05 PM from every 30 minutes to every 15 minutes.
34	Weekday	Fall 01	Added a new outbound trip at 7:25 PM and an inbound trip at 7:50 PM.
34	Sunday	Proposed-Winter 02	Added a new outbound trip to Dedham Line at 8:45 AM and a new inbound trip to Forest Hills at 9:05 AM.
34E	Weekday	Fall 99	Route 34E inbound service in the AM peak began making all stops. PM peak outbound service continues to operate as a limited.
41	Weekday	Fall 99	Improved AM & PM peak frequency from a bus every 18 minutes to a bus every 16 minutes.
45	Weekday	Spring 01	Started the 8 minute frequency earlier at 6:18AM instead of 6:55AM and ended it earlier at 8:50AM instead of 9:25AM to meet school period crowding problems.
49	Weekday	Winter 01	Improved AM peak frequencies from a bus every 7 minutes to a bus every 6 minutes and improved frequencies between 3:00 PM and 4:00 PM from a bus every 6.5 minutes to a bus every 6 minutes
49	Saturday	Winter 01	Improved frequencies 1:00 PM to 6:30 PM from a bus every 9 minutes to a bus every 8.5 minutes
57	Weekday	Fall 99	Added 7:35 AM and 8:00 inbound trips, and added 8:00AM outbound trips between Brighton Center and Kenmore.
57	Sunday	Fall 00	Increased early evening service (6:45PM – 9:15PM) from a bus every 30 minutes to a bus every 20 minutes.
57	Weekday	Winter 01	Improved AM peak frequencies from a

65	Weekday	Winter 01	bus every 6.5 minutes to a bus every 6. Improved AM peak frequency from a bus every 20 minutes to a bus every 15 minutes.
66	Weekday	Winter 01	Improved AM peak frequencies from a bus every 9 minutes to a bus every 8.5 minutes and improved PM peak frequencies from a bus every 9.5 minutes to a bus every 9 minutes.
66	Saturday	Winter 01	Improved frequencies 12:00 PM-4:00 PM from a bus every 20 minutes to a bus every 15 minutes
68	Weekday	Winter 99	Frequency improved from a bus every 40 minutes to a bus every 30 minutes.
70/ 70A	Weekday	Winter 00	Modified the Route 70 PM peak from a bus every 16 minutes to a bus every 10 minutes.
			Modified the Route 70A PM peak from a bus every 32 minutes to a bus every 30 minutes.
71	Sunday	Winter 01	Between 10:00 AM and 9:00 PM, frequency improved from a bus every 50 minutes to a bus every 35 minutes.
73	Sunday	Winter 01	Between 10:00 AM and 9:00 PM, frequency improved from a bus every 50 minutes to a bus every 35 minutes.
80	Weekday	Winter 01	A new outbound trip at 7:00 PM and an inbound trip at 7:30 PM were added
83	Weekday	Winter 01	Improved frequencies between 6:30 PM-8:15 PM from a bus every 25-55 to a bus every 20-35 minutes.
86	Weekday	Winter 00	The AM peak frequency from Cleveland Circle improved to every 10 minutes.
86	Weekday	Winter 01	Improved PM peak service from a bus every 20 minutes to a bus every 18 minutes
89	Weekday	Winter 01	Added new outbound trips at 7:30 PM and 8:15 PM, and new inbound trips at 7:50 PM and 8:35 PM.
96	Weekday	Winter 00	Late trips were modified from a bus every 60 minutes to a bus every 45 minutes.
96	Weekday	Spring 01	Frequency improved from a bus every 20 minutes to a bus every 15 minutes from 7:35AM to 8:40AM. Other AM trips were shifted to accommodate the new AM frequency.
105	Weekday	Fall 00	Added an additional outbound trip at 7:00 AM during the school year.
108	Weekday	Fall 00	Added a 7:15AM outbound trip to operate school-days.
108	Weekday	Winter 01	Shifted trip times between 6:55 AM and 7:15 AM to accommodate requirements of Malden High School

			and reduce crowding.
109	Weekday	Winter 01	Add new trips at 8:00 PM outbound and 8:25 PM inbound.
109	Weekday	Summer 01	Deleted the 8:00PM outbound & 8:25PM inbound trips, and added the 8:30PM outbound & 8:55PM inbound trips .
109	Weekday	Fall 01	Added additional outbound trips every 30 minutes between Sullivan And Glendale Sq. from 8:00 PM to 10:00 PM.
109	Weekday	Proposed-Winter 02	Added additional outbound trips every 30 minutes between Sullivan And Glendale Sq. from 10:00 PM to 11:00 PM.
111	Weekday	Spring 99	Added the 6:25PM & 6:55PM inbound and the 6:55PM & 7:25PM outbound trips.
111	Weekday	Fall 99	Added two (2) inbound trips from Washington Ave. @ Revere Beach Parkway at 5:00AM & 5:40AM .
111	Weekday	Winter 01	Early morning (5:00 AM-6:00 AM) frequency improved from a bus every 10 minutes to a bus every 7.5 minutes.
			AM peak frequency improved from a bus every 6 minutes to a bus every 5.5 minutes.
			Afternoon frequencies modified from a bus every 12 minutes to a bus every 10 minutes
			PM peak frequencies improved from a bus every 6 minutes to a bus every 5.5.
			Evening frequencies improved from a bus every 15 minutes to a bus every 12 minutes.
111	Saturday	Winter 01	Improved frequency 7:30 AM-10:00 AM from a bus every 30 minutes to a bus every 15 minutes
			Improved frequency 5:00 PM-7:30 PM from a bus every 12 minutes to a bus every 10 minutes
111	Weekday	Summer 01	Modified service between 9:00PM – 11:00PM from a bus every 12 minutes to a bus every 11 minutes.
111	Saturday	Fall 01	Improved frequencies from every 22.5 minutes to every 15 minutes between 5:30 AM and 7:30 AM.
111	Saturday	Proposed-Winter 02	Improved frequencies from every 25 minutes to every 16/17 minutes between 7:40 PM and 11:55 PM.

111	Sunday	Proposed-Winter 02	Improved frequencies from every 50 to every 25 between 6:00 AM and 9:00 AM, improved frequencies from every 25 to every 16/17 between 6:15 PM and 8:15 PM, and improved frequencies from every 50 to every 25 minutes between 10:20 PM and 1:00 AM.
116	Sunday	Winter 01	Improved frequency 2:00 PM-7:00 PM from a bus every 60 minutes to a bus every 50 minutes
116	Weekday	Spring 01	Modified frequency from 6:40PM to 10:45PM. Service improved from a bus every 60 minutes to a bus every 45 minutes.
117	Sunday	Winter 01	Improved frequency 2:00 PM-7:00 PM from a bus every 60 minutes to a bus every 50 minutes
117	Weekday	Spring 01	Modified frequency from 6:40PM to 10:45PM. Service improved from a bus every 60 minutes to a bus every 45 minutes.
120	Weekday	Spring 01	Added a 6:30PM inbound trip and a 7:00PM outbound trip.
131	Weekday	Spring 01	Improved frequency 7:00AM-8:00AM from a bus every 30 minutes to a bus every 20 minutes. (experimental increase)
134	Weekday	Proposed-Winter 02	Added a school-day inbound trip from West Medford to Wellington at 7:25 AM.
135	Weekday	Fall 00	Added 6:00AM & 6:30AM outbound and 6:30AM & 7:00AM inbound trips between Wakefield Sq. and Oak Grove.
135/ 136	Weekday	Spring 01	Deleted the 7:45AM inbound trip and then shifted the 7:38AM inbound and 8:13AM inbound trips to 7:35AM and 8:05AM.
220	Weekday	Spring 00	Shifted the 5:35PM trip to Hingham, 6:10PM & 6:25PM trips to Quincy (5) minutes later to 5:40PM to Hingham, 6:15PM & 6:30PM to Quincy This was to reduce the over crowding on the 5:45PM trip from Quincy Center on Route 222

222	Weekday	Winter 00	Shifted the 5:40PM trip to Weymouth & 6:10PM trip to Quincy five (5) minutes later to 5:45PM & 6:15PM
			Shifted the 5:20AM trip to Weymouth & 5:45AM trip to Quincy five (5) minutes earlier to 5:15AM & 5:40AM
222	Weekday	Spring 01	Shifted the 6:10AM trip to Quincy 10 minutes later to 6:20AM on Route 222
225	Weekday	Winter 01	Added an additional trip from Quincy Center at 6:50 PM and from Weymouth Landing at 7:15 PM.
238	Saturday	Fall 00	Added extra service between Quincy Center and South Shore Mall.
352	Weekday	Fall 99	Modified schedule to provide more frequent service during peak 30 minute period.
354	Weekday	Winter 01	Shifted the 5:50 AM, 6:05 AM, 6:20 AM, 7:33 AM, 7:46 AM, and 7:59 AM inbound trips to depart five minutes earlier at 5:45 AM, 6:00 AM, 6:15 AM, 7:28 AM, 7:41 AM, and 7:54 AM
354	Weekday	Summer 01	Shifted the 7:28AM & 7:41AM inbound trips to 7:34AM & 7:46AM.
426	Weekday	Spring 01	Shifted the 5:45AM inbound trip 15 minutes earlier to 5:30AM
			Shifted the 6:07AM inbound trip 7 minutes earlier to 6:00AM.
426	Weekday	Fall 01	Modified the 5:30 AM inbound trip to leave 10 minutes earlier at 5:20 AM and added a new inbound trip at 5:50 AM.
429	Weekday	Spring 00	Added a 7:05AM trip O'Callaghan Way to accommodate secondary school needs.
430	Weekday	Winter 99	Shifted various morning departure times to relieve crowding from Malden High School students.
436	Weekday	Fall 00	Added a 2:25PM to Goodwin Circle on days school is in session.
502	Weekday	Spring 00	Improved the frequency during the AM peak from a bus every 8 minutes to a bus every 7 minutes.
504	Weekday	Fall 00	Improved the frequency in the AM peak from a bus every 7.5 minutes to a bus every 6 minutes. Extended the AM peak by adding two (2) inbound trips at 9:15AM and 9:45AM.
504	Weekday	Winter 01	Improved frequencies between 8:00 and 8:30 AM from a bus every 6 minutes to a bus every 5 minutes.
504	Weekday	Fall 01	Shifted inbound trip times between 7:35 and 7:59 AM to provide more service between 7:49 and 7:59.

Green B	Saturday	Fall 99	Increased service 2:00PM – 6:00PM from a train every 7 minutes to a train every 6 minutes.
Green C	Weekday	Fall 99	Service with two-car trains extended one additional hour (7:00 PM to 8:00 PM).
Green D	Weekday	Winter 01	Added four 3-car train trips during peak periods.
Green E	Saturday	Fall 99	Improved frequency between 10:00AM – 6:00PM from a train every 9 minutes to a train every 7 minutes.
Green E	Sunday	Fall 99	Improved frequency 10:00AM – 6:00PM from a train every 6.5 minutes to a train every 5 minutes.
Green E	Weekday	Fall 01	Improved frequency in the AM and PM peaks from a train every 9 minutes to a train every 7 minutes.
Blue	Weekday	Summer 01	Improved frequency 7:45PM – 10:00PM from a train every 13 minutes to a train every 10.5 minutes.
Blue	Weekday	Fall 01	Improved frequency 10:00 PM – end of service, from a train every 13 minutes to a train every 10.5 minutes.
Orange	Weekday	Winter 01	Shifted departure times in the 8:00 AM time period to accommodate commuter rail passengers at Malden
Orange	Saturday	Fall 01	Improved frequency 12:00 PM-6:00 PM from a train every 10 minutes to a train every 8 minutes.

Loading and Utilization-Service Reductions

The following service had frequency reductions made between 1999 and 2001 in response to concerns of underutilized resources. In several cases, the savings from these changes were allocated to other routes or other time periods of the same route with unmet demand. There were 37 changes of this type made between 1999 and 2001.

Route	Time Period	Changed	Description
06	Weekday	Fall 00	Deleted the 6:00PM outbound trip to Boston Marine Industrial Park.
06	Weekday	Winter 01	Discontinued 9:30 AM and 10:00 AM inbound trips to Haymarket and 10:00 AM and 10:30 AM outbound trips to Boston Marine Industrial Park due to low ridership.
06	Weekday	Summer 01	PM peak frequency changed from a bus every 20 minutes to a bus every 30 minutes. Route 7 now provides PM peak service to Boston Marine

Route	Time Period	Changed	Description
06	Weekday	Fall 01	Industrial Park, reducing the demand for Route 6 service. Deleted early AM trip from South Station to Aquarium at 5:30 AM and its return trip at 5:40 AM. Savings were used for a new outbound trip from Haymarket at 5:32 AM.
06	Weekday	Proposed-Winter 02	The 5:25 PM outbound trip from Haymarket was discontinued.
08	Weekday	Proposed-Winter 02	The 7:16 AM outbound trip from Kenmore to Dudley was discontinued.
15	Weekday	Proposed-Winter 02	Discontinued outbound trips from Ruggles to Kane Sq. leaving Ruggles at 6:35 AM, 6:45 AM, and 7:50 AM.
23	Weekday	Proposed-Winter 02	Deleted outbound trips from Ruggles to Ashmont at 6:58 AM, 8:31 AM, and 8:41 AM.
34E	Weekday	Fall 01	Deleted the 7:50 AM outbound trip and the 8:50 AM inbound trip. The resources saved were used to add an additional evening trip.
43	Weekday Saturday	Proposed-Winter 02	Modify frequency between 11:35 PM and 1:00 AM from every 20 minutes to every 35 minutes.
60	Weekday	Fall 01	Reduced frequencies in the AM peak from a bus every 17 minutes to a bus every 22 minutes.
60	Saturday	Proposed-Winter 02	Modified early morning (5:30 AM-7:30 AM) frequency from a bus every 25 minutes to a bus every 50 minutes.
67	Weekday	Winter 01	Discontinued the 3:55 PM outbound and 4:16 PM inbound trips. The resources saved were used to extend service with an additional evening trip.
77A	Weekday	Winter 99	Service discontinued between 10:00 AM and 1:14 PM and replaced with Route 77 buses making local stops.
80	Weekday	Winter 01	Modified PM peak frequencies from a bus every 15 minutes to a bus every 20 minutes. Resources saved used to improve frequency between 7:00 PM and 8:00 PM.
83	Weekday	Winter 01	Modified PM peak frequencies from a bus every 15 minutes to a bus every 20 minutes. Resources saved used to improve frequency after 7:00 PM.
89	Weekday	Winter 01	Modified frequency 3:00 PM - 4:00 PM from a bus every 10 minutes to a bus every 12 minutes. Resources saved used to improve frequency after 7:00 PM.
92	Weekday	Spring 01	Deleted the 10:15PM & 10:35PM outbound and the 10:25PM & 10:45PM inbound trips between Assembly Sq.

Route	Time Period	Changed	Description
92	Weekday	Summer 01	and Sullivan Sq. Frequency modified in the AM peak from every 10 minutes to 12 minutes.
94	Weekday	Spring 01	Deleted the 5:42AM inbound and 6:02AM outbound trips on Rte. 94. Resources saved to impro
95	Weekday	Fall 00	Modified the AM & PM peak frequencies from a bus every 15 minutes to a bus every 20 minutes.
99	Weekday	Fall 00	Deleted the 7:15AM & 7:30AM inbound and the 7:30AM outbound trips between Upper Highland Avenue and Malden Station.
100	Weekday	Fall 00	Modified the frequency in the late morning and early afternoon from a bus every 20 minutes to a bus every 35 minutes.
116	Weekday	Fall 99	AM peak frequency was modified from a bus every 16 minutes to a bus every 18 minutes and the savings were used to supplement this route with new service on Route 114.
117	Weekday	Fall 99	AM peak frequency was modified from a bus every 16 minutes to a bus every 18 minutes and the savings were used to supplement this route with new service on Route 114.
131	Weekday	Summer 01	Restored former 30-minute frequency between 7:00-8:00 AM after trial period with 20 minute frequency in Spring 2001.
134	Weekday	Winter 01	Modified evening frequencies from a bus every 40 minutes to a bus every 60 minutes.
238	Saturday	Fall 00	Discontinued extra service between North Randolph and South Shore Mall because of poor ridership. Resources saved were used to add extra service between Quincy Center and South Shore Mall.
325	Weekday	Fall 00	The PM peak was modified from a bus every 12 minutes to a bus every 15 minutes.
326	Weekday	Fall 00	The PM peak was modified from a bus every 12 minutes to a bus every 15 minutes.
437 500	Weekday	Fall 00	Deleted the 7:50AM trip to Central Sq. Modified the AM peak frequency from a bus every 10 minutes to a bus every 12 minutes (keeping a ten minute frequency in the window from 7:50AM – 8:20AM).
500	Weekday	Fall 00	Modified the AM and PM peak service. The AM frequency was changed from a

Route	Time Period	Changed	Description
			bus every 12 minutes to a bus every 15 minutes (keeping a 12 minute frequency from 7:45 AM to 8:21 AM). The PM was changed from a bus every 10 minutes to a bus every 15 minutes.
501	Weekday	Fall 01	Deleted 8:45 and 8:55 AM inbound trips and 8:21 and 8:29 AM outbound trips.
504	Weekday	Fall 01	Deleted the 8:17 AM outbound and 8:52 inbound trips between Newton Corner and Downtown because they duplicate other trips on Route 504 from Watertown.
556	Weekday	Fall 01	Deleted 2:03 PM outbound and 3:00 PM inbound trips.
Green D	Weekday	Fall 01	Modified frequency from a train every 4.5 minutes to a train every 5 minutes in the AM and PM peak.

Service Reliability

The changes listed below were initiated to improve reliability because of problems identified with on-time performance or coordination with other services. Sometimes, these changes resulted in a slight frequency reduction, even though the number of vehicles on the route were not decreased. In these cases, increased traffic and congestion required that additional running time be allocated to each trip. There were 79 changes of this type made between 1999 and 2001.

Route	Time Period	Changed	Description
01	Weekday	Winter 01	Added resources to improve reliability in the afternoon and PM peak.
04	Weekday	Spring 01	Several trips modified to better coincide with Commuter Rail arrival/departures.
06	Weekday	Spring 99	Shifted the 5:00PM, 5:30PM and 6:00PM inbound trips from Boston Marine Industrial Park to 4:50PM, 5:10PM and 5:45PM. Shifted the 5:30PM outbound trip ten (10) minutes earlier to 5:20PM.
10	Weekday	Winter 01	Late trips after 9:00PM were modified as follows to improve on-time reliability: 11:20PM inbound shifted to 11:25 PM 12:20AM inbound shifted to 12:30AM 9:45PM outbound shifted to 9:40PM 10:50PM outbound shifted to 10:55PM 11:50PM outbound shifted to 12:00AM 12:50AM outbound shifted to 1:00 AM

10	Weekday	Winter 01	Schedules modified to give buses additional running time. AM peak frequencies changed from a bus every 15 minutes to a bus every 20, Late morning frequencies changed from a bus every 30 to a bus every 35 minutes, Late afternoon, changed from a bus every 25 minutes to 35 minutes, and PM peak changed from a bus every 16 minutes to a bus every 20 minutes.
11	Weekday	Spring 01	The PM peak frequencies were modified from a bus every 9 minutes to a bus every 11 minutes to improve reliability.
17	Weekday	Spring 00	Modified frequencies as follows: AM peak from 15 to 14 minutes. AM base from 20 to 25 minutes. PM base from 15 to 10 minutes. PM peak from 15 to 14 minutes.
19	Weekday	Winter 99	To improve reliability: Frequency modified in the AM peak from a bus every 13 minutes to a bus every 15 minutes and in the PM peak from a bus every 20 minutes to a bus every 25 minutes.
21	Weekday	Summer 01	To improve reliability: Modified AM peak frequencies from a bus every 9 minutes to a bus every 10. Modified PM peak frequencies from 11 to 12.
22	Saturday	Winter01	To improve reliability, vehicle resources were increased from 1:00 PM-6: 00 PM.
22	Weekday	Fall 01	To improve reliability, modified the PM peak frequencies from a bus every 7 minutes to a bus every 8 minutes.
23	Weekday	Winter 99	To improve reliability: Modified AM peak frequency from a bus every 4 minutes to a bus every 5 minutes. Modified late afternoon frequency from a bus every 11 minutes to a bus every 12 minutes. Modified PM peak frequency from a bus every 6 minutes to a bus every 7 minutes.
23	Weekday	Fall 99	Additional vehicle resources allocated after 8:00 PM to improve reliability.
24	Weekday	Winter 01	In the PM peak, trips rescheduled to leave Mattapan every 30 minutes instead of every 25 minutes. This allows Route 24 service to be coordinated with Route 33, for a combined frequency of every 15 minutes.
28	Weekday	Winter 99	To improve reliability, AM peak

			frequencies changed from a bus every 6 minutes to a bus every 7 minutes and PM peak frequencies changed from a bus every 7 minutes to a bus every 8 minutes.
28	Sunday	Winter 99	To improve reliability, modified frequency 9:30 AM-10:59 AM from a bus every 12 minutes to a bus every 15 minutes and 11:00 AM-1:30 PM from a bus every 10 minutes to a bus every 12 minutes.
28	Weekday	Spring 00	Modified the frequency after 7:00PM from a bus every 16 minutes to a bus every 20 minutes. Departure times on Route 28 were then coordinated with Route 23 after 7:00 PM to provide service every ten minutes from Ruggles to Grove Hall.
28	Weekday	Winter 01	Additional vehicle resources were added between 1:00 PM and 4:00 PM to improve reliability.
28	Sunday	Winter 01	Increased vehicle resources from 1:30 PM to 6:00 PM to improve reliability.
28	Weekday	Proposed-Winter 02	Modified frequencies between 9:30 AM and noon from 10 minutes to 11 minutes to improve reliability.
30	Weekday	Winter 01	AM peak and PM peak frequencies were changed from a bus every 25 minutes to a bus every 30 minutes to improve reliability.
31	Weekday	Summer 01	Modified the PM peak frequency from a bus every 8 minutes to a bus every 9 minutes to improve reliability.
34	Weekday	Proposed-Winter 02	The 6:30 PM outbound trip to Walpole will now make all stops. The 6:30 PM trip to Dedham Line was shifted to depart at 6:40 PM. The 6:55 PM inbound trip from Dedham Line to Forest Hills was shifted to leave at 7:00 PM.
35	Sunday	Spring 00	Shifted inbound trips from 11:00AM – 6:00PM 15 minutes later to 11:15 AM-6:15 PM and shifted outbound trips from 10:30AM – 5:30PM fifteen (15) minutes later to 10:45AM – 5:45PM. These changes provided better coordination with Routes 36 and 37.
39	Weekday/ Saturday/ Sunday	Spring 00	The arrival and departure area for Route 39 at Forest Hills station was relocated to its own area on the upper level of Forest Hills Station. This simplified the routing at Forest Hills and improved reliability.
39	Saturday	Winter 01	Increased vehicle resources from 11:00 AM to 7:00 PM to improve reliability.
41	Saturday	Spring 00	Modified the frequency between

			10:30AM and 6:00PM from a bus every 35 minutes to a bus every 40 minutes to improve reliability.
45	Weekday	Spring 01	Modified the AM peak frequency from a bus every 7.5 minutes to a bus every 8 minutes to improve reliability.
48	Weekday/ Saturday	Spring 00	Modified the frequency on Rte. 48_ from a bus every 30 minutes to a bus every 35 minutes weekdays 1:30PM – 4:30PM and all day Saturdays to improve reliability.
48	Weekday	Spring 00	The last trip from the Monument was shifted from 4:00PM to 4:25PM.
57	Weekday	Fall 01	To improve reliability, additional vehicle resources were allocated in the PM peak.
57	Sunday	Proposed- Winter 02	To improve reliability, additional vehicle resources were allocated between 3:00 PM and 6:00 PM.
62/76	Saturday	Winter 01	Frequency changed between 8:00 AM and 3:00 PM from a bus every 60 minutes to a bus every 70 minutes to improve reliability.
64	Weekday	Winter 00	Shifted the 9:20AM outbound trip from Central Sq. Cambridge 5 minutes earlier to 9:15AM.
			Shifted evening trips as follows: From 7:00PM – 12:00 AM, the outbound trips were shifted five (5) minutes later to 7:05PM – 12:05AM. From 7:30PM – 11:30PM the inbound trips were shifted ten (10) minutes later to 7:40PM – 11:40PM.
66	Saturday	Fall 00	Frequency modified from a bus every 15 minutes to a bus every 20 minutes to improve reliability.
66	Sunday	Summer 01	Added vehicle resources from 11:00AM – 4:00PM to improve reliability.
69	Weekday	Winter 01	PM peak frequencies modified from a bus every 17 minutes to a bus every 20 minutes to improve reliability.
69	Sunday	Winter 01	Between 10:00 AM and 6:00 PM, frequency changed from a bus every 30 minutes to a bus every 35 minutes to improve reliability.
70/ 70A	Weekday	Winter 00	Modified the AM peak frequencies from a bus every 15 minutes to a bus every 17 minutes to improve reliability.
70/ 70A	Weekday	Spring 00	Shifted several AM peak trips on Route 70A for better coordination with Route 70.
70	Sunday	Summer 00	Added vehicle resources to improve reliability.
70	Weekdays	Proposed-	Shifted 6:15 PM outbound trip to

		Winter 02	Waltham to 6:20 PM. Shifted 6:30 PM outbound trip to Waltham to 6:40 PM. These changes created even every 20-minute departures between 6:00 PM and 7:00 PM.
71	Weekday	Winter 99	To improve reliability: Modified AM peak frequencies from a bus every 6 minutes to a bus every 7 minutes. Modified late-morning and afternoon frequencies from a bus every 12 minutes to a bus every 13 minutes. Modified PM peak frequencies from a bus every 8.5 minutes to a bus every 9.5 minutes.
72	Weekday	Winter 01	Between 7:35 AM and 9:55 AM frequencies changed from a bus every 15 minutes to a bus every 20 minutes to improve reliability.
73	Weekday	Winter 99	To improve reliability: Modified AM peak frequencies from a bus every 4.5 minutes to a bus every 5 minutes. Modified late-morning and afternoon frequencies from a bus every 12 minutes to a bus every 13 minutes. Increased vehicle resources in the PM peak.
77	Saturday	Winter 01	Frequency changed from every 8-10 minutes to every 10-12 minutes improve reliability
83	Sunday	Winter 00	Shifted trips 20 minutes earlier from 11:20AM – 6:40PM outbound & 11:40AM – 7:00 PM inbound. Trips shifted to improve coordination with Route 91 between Central Sq. and Inman Sq.
86	Saturday	Spring 00	Added vehicle resources to improve reliability.
86	Sunday	Spring 00	Added vehicle resources to improve reliability.
87	Weekday	Winter 00	Modified AM peak frequencies from a bus every 16 minutes to a bus every 17 minutes to improve reliability.
87	Sunday	Winter 01	Between 10:00 AM and 6:00 PM, frequencies modified from a bus every 30 minutes to a bus every 35 minutes to improve reliability.

88	Weekday	Winter 00	Standardized AM peak period frequencies to provide an even 6 minute frequency.
88	Weekday	Spring 00	Shifted PM trips to improve coordination with Route 87 from Lechmere Sta. and through Davis Sq.
88	Sunday	Winter 01	Between 10:00 AM and 6:00 PM, frequencies modified from a bus every 30 minutes to a bus every 35 minutes to improve reliability.
89	Weekday	Spring 01	Shifted the 8:15PM outbound trip five minutes earlier to 8:10PM. Deleted the 8:00PM outbound & 8:20PM inbound trips.
			Shifted the following late trips leaving Sullivan Station to improve coordination with Route 101.
			The 9:00PM, 10:00PM & 11:00PM outbound were shifted to the 9:05PM, 10:10PM & 11:15PM
			The 10:20PM & 11:20PM inbound trips were shifted to 10:25PM & 11:30PM inbound.
91	Weekday	Fall 01	To improve reliability, AM and PM peak frequencies modified from every 25 to every 30 minutes.
94	Weekday	Winter 00	Late trips were modified from a bus every 40 minutes to a bus every 45 minutes to improve reliability.
94	Weekday	Spring 01	Deleted the 5:42AM inbound and 6:02AM outbound trips on Rte. 94. Trips were then shifted throughout the AM peak, preserving a 22 minute frequency.
96	Weekday	Winter 00	Shifted the following trips five (5) minutes earlier to better coordinate departures with Route 94: 4:50PM outbound to 4:45PM 5:10PM outbound to 5:05PM 5:30PM outbound to 5:25PM 5:50PM outbound to 5:45PM 6:10PM outbound to 6:05PM 6:30PM outbound to 6:25PM 6:50PM outbound to 6:45PM
99	Weekday	Spring 00	Modified the AM peak frequency from a bus every 20 minutes to a bus every 25 minutes. Modified the late afternoon and PM peak frequency from a bus every 20 minutes to a bus every 25 minutes to improve reliability.
99	Weekday	Spring 01	Shifted the 7:30AM inbound to 7:20AM. Added a 7:40AM inbound trip from

			Upper Highlands – Malden Station. These changes improved coordination with Route 106 between Malden and Wellington.
101	Weekday	Spring 01	Shifted the 7:45PM outbound trip five minutes later to 7:50PM to improve coordination with Route 89.
116	Weekday	Winter 01	To improve reliability: Modified late morning frequencies from a bus every 30 minutes to a bus every 34 minutes. Modified afternoon frequencies from a bus every 20 minutes to a bus every 23 minutes. Increased vehicle resources in the PM peak.
117	Weekday	Winter 01	To improve reliability: Modified late morning frequencies from a bus every 30 minutes to a bus every 34 minutes. Modified afternoon frequencies from a bus every 20 minutes to a bus every 23 minutes. Increased vehicle resources in the PM peak.
114, 116, and 117	Weekday/ Saturday/ Sunday	Spring 01	Service at all times modified because of Meridian St. bridge reconstruction. Buses placed on a detour route and schedules adjusted.
131	Weekday	Fall 00	Shifted and modified the 6:10AM & 7:10AM outbound and 6:30AM inbound trips to 6:05AM & 7:00AM outbound and 6:25AM inbound.
210	Weekday	Fall 01	Increased vehicle resources during the AM peak to improve reliability.
211	Saturday	Summer 00	Shifted all trips on Rte. 211 from 8:30AM to the end of service, twenty (20) minutes later for a better connection with Rte. 236.
215	Saturday	Spring 00	Modified the frequency from a bus every 30 minutes to a bus every 35 minutes to improve reliability.
221	Weekday	Winter 00	Shifted the 5:48PM trip to Weymouth & 6:08PM trip to Quincy seven (7) minutes later to 5:55PM & 6:15PM.
225	Weekday	Fall 99	Modified three trips to Quincy Center at 3:40PM, 4:00PM & 4:20PM to operate via Desmoines Rd.
236	Saturday	Summer 00	Shifted all trips twenty (20) minutes later for better service to the South Shore Mall from Quincy Center. (Better coordination with Route 238).
238/ 240 238/ 240	Saturday	Summer 00	Modified departure times to improve reliability.
	Sunday	Summer 00	Modified Route 238 and Route 240 service from a bus every 60 minutes to a bus every 70 minutes to improve

350	Weekday	Winter 99	reliability. Shifted various AM departure times to improve reliability and increase service to Burlington Mall Road from Alewife.
350	Weekday	Fall 00	Modified AM peak departure times to improve reliability.
429	Weekday	Fall 01	Modified various AM and afternoon trip times to accommodate class times at Lynn Public Schools.
501	Weekday	Fall 00	Added vehicle resources in the AM peak to improve reliability.
CT2	Weekday	Winter 01	Vehicle resources increased in the AM and PM peaks to improve reliability.

Span of Service

The following services have had improvements made in the span of service, with either earlier or first trips or later last trips added. There were 46 changes of this type made between 1999 and 2001.

Route	Time Period	Changed	Description
05	Weekday	Spring 00	Added an 8:45AM inbound trip.
10	Saturday	Winter 01	Rerouted early AM trips to serve South Bay Center
10	Sunday	Winter 01	Service between 6:30 PM and 8:30 PM modified to serve South Bay Mall
14	Weekday	Winter 01	Additional inbound trips were added to Dudley at 7:00 PM and 7:30 PM
19	Weekday	Winter 01	Added an additional outbound trip at 6:50 PM
21	Weekday	Fall 00	Added a 5:30AM inbound trip.
24	Weekday	Fall 00	Added early morning service at 5:07AM & 5:30AM from Logan Sq. to Mattapan.
28	Sunday	Fall 99	Added a 5:39AM inbound trip.
30	Weekday	Winter 01	The 12:00 PM and 6:55 PM trips from Mattapan to Roslindale Sq. were extended to Forest Hills.
30	Weekday	Summer 01	Extended the 6:30 PM trip from Mattapan to Roslindale Sq. to Forest Hills.
			The 7:00 PM trip from Roslindale Sq. to Mattapan was shifted to start at Forest Hills at 6:55 PM.
30	Weekday	Proposed-Winter 02	The 6:40 AM trip from Roslindale Sq. to Mattapan was extended to start at Forest Hills
			The 9:05 AM trip from Mattapan to Roslindale Sq. was extended to Forest Hills.

Route	Time Period	Changed	Description
31	Weekday	Summer 01	The 9:30 AM trip from Roslindale Sq. to Mattapan was extended to leave Forest Hills at 9:25 AM. Shifted the 4:45AM outbound trip from Forest Hills seven minutes earlier to 4:38AM. Shifted the 5:00AM inbound trip to Forest Hills seven minutes earlier to 4:53AM.
35	Weekday	Proposed-Winter 02	The 8:35 PM outbound trip from Forest Hills was shifted to leave Forest Hills at 8:45 PM. The 9:05 inbound trip from Dedham Mall at 9:05 PM was shifted to leave Dedham Mall at 9:15 PM.
37	Weekday	Proposed-winter 02	The 7:15 PM outbound trip from Forest Hills was shifted to leave at 7:20 PM.
67	Weekday	Winter 01	Added a new outbound trip from Alewife at 7:50 PM and an inbound trip at 8:08 PM.
74/ 75	Weekday	Summer 01	Modified the 6:40PM, 8:20PM & 10:20PM outbound trips from Harvard to operate via Route 75 (Huron Tower).
78	Weekday	Winter 99	Changed the 8:53 AM trip from Arlington Heights to a 8:55 AM trip from Arlmont.
79	Weekday	Summer 01	Shifted the 9:05PM outbound trip from Alewife five minutes later to 9:10PM.
86	Sunday	Spring 00	Extended service in the PM to a last trip of 7:00PM inbound & 7:45PM outbound.
93	Weekday	Proposed-Winter 02	Modified one AM inbound trip to Downtown and one PM outbound trip to Sullivan to operate via the Navy Yard.
110	Weekday	Winter 01	Evening trips extended from Woodlawn to Wonderland.
110	Saturday	Winter 01	Extended AM trips from Woodlawn to Wonderland.
110	Sunday	Summer 01	Extended service 7:15AM – 9:00AM from Broadway & Park Avenue to Wonderland.
111	Weekday	Winter 01	First inbound trip to Haymarket now at 4:45 AM instead of 5:00 AM.
111	Saturday	Winter 01	Added inbound trips to Haymarket at 5:13 AM and 5:58 AM and outbound trips at 5:35 AM and 6:20 AM.
116	Weekday/ Saturday/ Sunday	Fall 99	Added a 4:25AM outbound trip to Wonderland on Rte. 116 for earlier service.
116 /197	Sunday	Summer 01	Discontinued 1:00 AM trip on route 116 from Wonderland to Maverick because of low ridership. Added 5:30 AM trip on Route 197 from Wonderland to Haymarket.

Route	Time Period	Changed	Description
121	Weekday	Winter 01	Shifted the 6:15 PM outbound trip from Maverick, to 6:20 PM.
225	Weekday	Proposed-Winter 02	Added a new earlier trip from Weymouth Landing to Quincy at 5:30 AM.
238	Sunday	Winter 99	Modified the 7:05 PM trip from Quincy to operate via South Shore Mall.
238	Sunday	Fall 99	Modified the 7:30AM & 8:30AM trips from Quincy to operate via South Shore mall.
240	Weekday	Winter 99	Added a 5:25 AM inbound trip.
245	Weekday	Summer 01	Shifted the 6:10PM inbound and the 6:40PM outbound trips 5 minutes later to 6:15PM and 6:45PM to improve connection from the Middleboro train at Quincy Center.
326	Weekday	Fall 01	The last outbound trip to West Medford, was shifted from 6:22 PM to 6:35 PM.
350	Weekday	Fall 99	Modified the 10:20PM inbound trip to operate via Burlington Mall.
350	Sunday	Proposed-Winter 2002	Shifted the 7:20 AM trip from Alewife to Burlington to leave at 7:05 AM and operate via Burlington Mall Road.
429	Weekday/Saturday	Winter 99	Modified evening service after 8:00 PM to serve Kings Lynne while omitting Newcomb and Garfield Sts.
430	Saturday	Spring 00	Added 8:45AM & 9:45AM outbound trips to Square One Mall and Saugus.
435	Weekday	Fall 00	Added 7:15AM trip from Central Sq. to Liberty Tree Mall and an 8:00AM trip from Liberty Tree Mall to Central Sq.
436	Weekday	Spring 01	Shifted the 7:28AM inbound trip to Haymarket earlier to 7:05AM.
451	Weekday	Fall 00	Modified the 6:30AM trip from Salem to operate via Sohier Road.
502	Weekday	Fall 01	Replaced 9:25 & 9:40 AM inbound trips and 8:55 & 9:10 AM outbound trips with equivalent trips on Route 504 that operate via Copley.
504	Weekday	Winter 01	Service between 1:30 PM and 3:30 PM modified to operate via Copley Sq.
504	Weekday	Spring 01	Modified the 10:00AM inbound and the 10:30AM outbound trips to operate via Copley Sq. Trips were modified to provide more consistent service to Copley Square.
504	Weekday	Fall 01	Modified the 9:20, 9:30, and 9:45 AM inbound and 8:51 AM outbound trips to operate via Copley Sq.
504	Weekday	Proposed-Winter 02	Modified the 9:30 AM outbound trip to operate via Copley and modified the 3:30 PM outbound trip to by-pass Copley.